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LOGIC *and* EPISTEMOLOGY

By the same Author
COSMOLOGIA

Written in Latin. A happy blending of the old with the new, of scholastic principles with the findings of such modern sciences as physics and chemistry, geology and astronomy.

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LOGIC

and

EPISTEMOLOGY

By

A. C. COTTER, S.J.

FOURTH AND REVISED EDITION



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Preface

Brevity, plain and direct presentation, close-knit reasoning and logical coherence—these are the aims which the author has kept in view throughout.

Nothing was farther from his mind than to write an exhaustive treatise. For the beginner an outline of fundamentals is far preferable. Hence questions disputed among Scholastics were eliminated for the most part. Also, merely psychological tidbits, though much in vogue today, were discarded. Even those points which seemed essential, were not developed to their full possibility. A text book is not meant to supplant the teacher. Rather the earnest teacher may be relied on to clothe the bare skeleton of his manual with the flesh of his own wider knowledge and to quicken the whole with the warm blood of his own personality.

“*Brevis esse laboro; obscurus fio.*” The author hopes to have successfully avoided this other shoal of text books. For this reason technical language has been reduced to a minimum. In every chapter the student is told plainly how his present study fits in with what he already knows. Philosophy is not a rainbow, beautiful and useless. Philosophy is taught in Catholic colleges that it may become the backbone of the student’s intellectual and moral life.

For this reason, too, the scholastic system and method were chosen for presentation. More than ten years of teaching scholastic philosophy have convinced the author of its pedagogical worth. There is no other philosophical system in the market which can compare with the scholastic in common sense and definiteness of teaching. There is no other philosophical method which even approaches the scholastic in

sound reasoning and logical coherence. To the beginner, who is not yet capable of grappling with flashy systems and tricky methods, such a philosophy is indispensable.

In conclusion, the author wishes to discharge a debt of gratitude to Rev. F. W. Boehm, S.J., Dean of the Philosophical Department of Boston College, who aided him by word and deed in the preparation of this manual. He also thanks the Stratford Company for the care which they took in its publication.

A. C. C.

Weston College,
Weston, Mass.
April 17, 1930.

PREFACE TO SECOND EDITION

Only a few minor changes have been made in Epistemology. But at the request of many teachers, Examples and Exercises have been added as an Appendix to Logic.

A. C. C.

February 15, 1931.

PREFACE TO THIRD EDITION

This edition has been thoroughly revised and considerably enlarged. Some new theses have been inserted, and fundamental parts have been added to others. The positions of the opponents of the single theses have been formulated more exactly in many instances. Finally, further reading matter, either on the whole thesis or on some particular points, is indicated after each thesis. The author hopes to have made the book thereby more serviceable for actual use in the class room.

The author wishes to express his thanks to the Stratford Company, who consented, at great expense to them, to reset the book in its entirety.

The author desires to call the teacher's attention to the following three points:

1. In the first chapters of Logic, the simple *syllogism* has been made the unifying theme as well as the ultimate aim. All discussion which did not advance this purpose, was relegated to the last part. On the other hand, the sentence or *proposition* has been made the starting-point of all explanations; the underlying principle is the well-known axiom that all truths are couched by us in sentence-form.

2. All merely *psychological* information has been excluded as far as possible.

Logic differs essentially from psychology. Logic deals primarily with the objective aspect of our intellectual processes, psychology with the subjective. No doubt, both aspects are present in every cognition and they may aid each other, but they must not be confused; else we have *psychologism*, the bane of present-day philosophy.¹

Nor—let it be added at once and emphatically—is epistemology a branch of psychology. Epistemology investigates the final cause of our faculties, psychology the other causes (formal, material, efficient). At the same time, there is no denying that a knowledge of what is today called 'experimental psychology' would be a decided advantage for the student; without such knowledge the force of many of the difficulties urged against our theses will hardly be grasped fully.

¹ See Donat, *Logica* (ed. 5) p. 47-48. Of the Englishmen of the 18th century, Taine says: "At bottom the men of this country did not care for metaphysics; to interest them, it must be reduced to psychology. Then it becomes a science of observation, positive and useful, like botany" (Hist. of English Lit. II p. 90).

3. Logic is not only a science, but also an *art*. In fact, studying a text-book of logic is of little use unless the scholar acquires the life-long habit of reasoning correctly himself and of analyzing the arguments of others as to their soundness. For this purpose it seemed advisable to restrict the number of *precepts* to a minimum. Else, like David clad in the armor of Saul, the beginner is apt to be overwhelmed rather than helped.

A. C. C.

Weston, Mass.

March 25, 1936.

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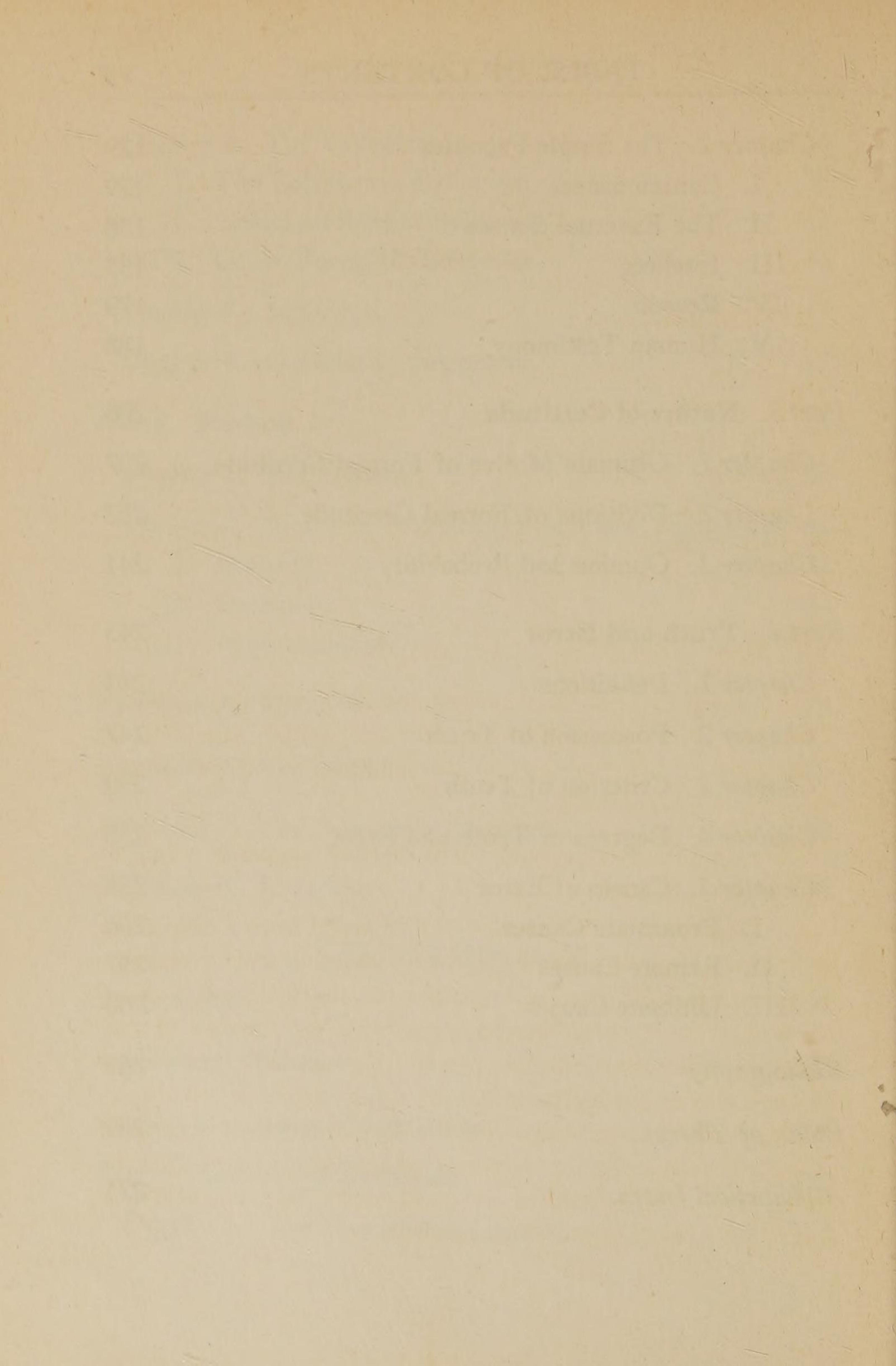
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Philosophy

I. Definition

1. NOMINAL DEFINITION. Philosophy (from $\phi\imath\lambda\oslash$ and $\sigma\imath\phi\imath\alpha$) literally means "*love of wisdom*." Hence the philosopher, by his very name, is a lover of wisdom.

The name is said to be due to Pythagoras. Others before him had called themselves simply "*wise men*" ($\sigma\imath\phi\imath\imath\imath$) ; his modesty bade him be satisfied with the less pretentious name of "*lover of wisdom*."

2. REAL DEFINITION

Many real definitions of philosophy have been put forward. The best is undoubtedly the one commonly accepted by Scholastics: "*Philosophy is the knowledge of all things through their last causes*."

This definition comprises three distinct elements. Let us look at each in turn.

a. Philosophy is *knowledge*. This word must be taken to mean not a mere knowledge of facts, valuable and fundamental though this be ; it rather means what the Scholastics called *scientia*, that is, systematized knowledge, so that we clearly understand the relations between things, especially knowledge through causes, understanding why things are and must be so.

The word "*cause*," however, must be taken in a very wide sense. It may refer to extrinsic or intrinsic causes, to concrete (the usual 4 causes as enumerated by Aristotle) or abstract causes (i.e. universal concepts).

b. Philosophy is knowledge of *all things*. This is called the material object of philosophy.

Philosophy then deals first of all with reality, "*things*." Philosophy does not chase after the pot of gold at the rainbow's end, but takes its stand on the solid ground of reality. It seeks to understand why things are as they are and why they must be as they are.

Moreover, philosophy is all-embracing; it seeks to understand *all things*, all reality. The height of ambition. But this must not be misunderstood. God alone knows all things; God alone can know all things. Nor need the philosopher be a walking encyclopedia. But two qualifications mark the true philosopher: a) his actual knowledge covers at least the foundations and outlines of the various fields of human knowledge; b) his outlook is universal; he does not shut his eyes wilfully to any particular class of things.

c. Philosophy reduces all things to their *last causes*. This is called the formal object of philosophy.

To do this, it is incumbent on the philosopher to study first of all these last causes themselves: their existence, their nature, their attributes. Some would even define philosophy as merely "knowledge of the last causes." Still this cannot be its adequate aim. After having studied the last causes, the true philosopher will return to his material object, viz. all reality, trying to understand and appreciate it in the light of the last causes. He wishes to know why all things are so and must be so owing to their connection with their last causes.

d. To simplify matters, we omitted from the definition of philosophy one element which we, as Catholics, must insert.

Also our faith teaches us the last causes of things and the relations of all things to them. It teaches us that God made all things, that He made them as imitations of His own goodness, that He made them ultimately for His own glory. Yet

faith differs from philosophy. Faith, aided by grace, believes these truths because God has directly revealed them; philosophy, on the contrary, while actually arriving at the same truths, relies on man's natural powers and insight.

To bring out this difference, the Scholastics added to the definition of philosophy one modifying phrase: "*as far as this can be acquired by our natural powers*," that is, without the special aid of God's revelation. Whatever can be known only through revelation (e.g. Incarnation, bodily resurrection), is excluded.

Though pondering the definition is, generally speaking, the best approach to any subject, yet because of the peculiar nature of philosophy, it may be well for the beginner to look at it from another angle. Let us compare philosophy with other kinds of knowledge with which all are today familiar.

If we include under the term "knowledge" whatever we know, then there are evidently various kinds.

We all know hundreds and thousands of *facts* (external and internal, past and present, important and irrelevant, pleasant and unpleasant); we also know some *general truths*; e.g. that stones fall if unsupported in air, that spring follows winter, that fish die out of water, and so on. Of some of these things we are sure, of others not so sure. This is *everyday knowledge*. There is nothing startling about it except when it is entirely new and unexpected. But this kind of knowledge, though making up the bulk of what we know, is neither science nor philosophy.

Science goes a step beyond. It may apply an exact method to the observation of the same and other things. It may count and measure and weigh to the last degree of accuracy. Or it may reduce the facts observed to laws; then it will see in the falling of the stone a particular case of universal

attraction; it will bring the recurring seasons under the laws of astronomy; it will recognize the need of special respiration for every kind of organic life. Or finally, science may study the laws themselves, proving them to be laws and reducing them to their causes.

Clearly this is progress over the common or garden variety of knowledge mentioned in the first place. Not that everyday knowledge has been denied or changed; but it has gained in depth.

Now there are many sciences, each with its own field and method. We have physics and chemistry, geology and astronomy, biology and anatomy, botany and zoölogy, economics and sociology, history and anthropology, and a host of others. *Philosophy* differs from each and all.

First, philosophy is *not limited* in its outlook. Unlike the sciences mentioned, it has for its field all reality, the whole universe, bodies and spirits, time and eternity. It even reflects on knowledge itself to determine its value, limits and method. To restrict the material object of philosophy to the bodily world or to man or to the possibles (as some did in the past), would betray intellectual myopia.

Nor is philosophy the sum-total of the sciences. For it puts and answers questions which *transcend* the purview of each and all. To take but one example. The owner of a hot-house may wonder why his plants die when deprived of air. He will find the answer in the necessity of respiration. Plants breathe, and if they cannot breathe air, they will die. He may ask further why plants must breathe, and he will find the reason in the laws of organic life. The philosopher discusses another set of problems: What are the *last causes* of all plants, of all organic life, of life in general, of all beings; what are their ultimate *constituents*; how did they first *come into being*; what is their ultimate *purpose*? If he can solve

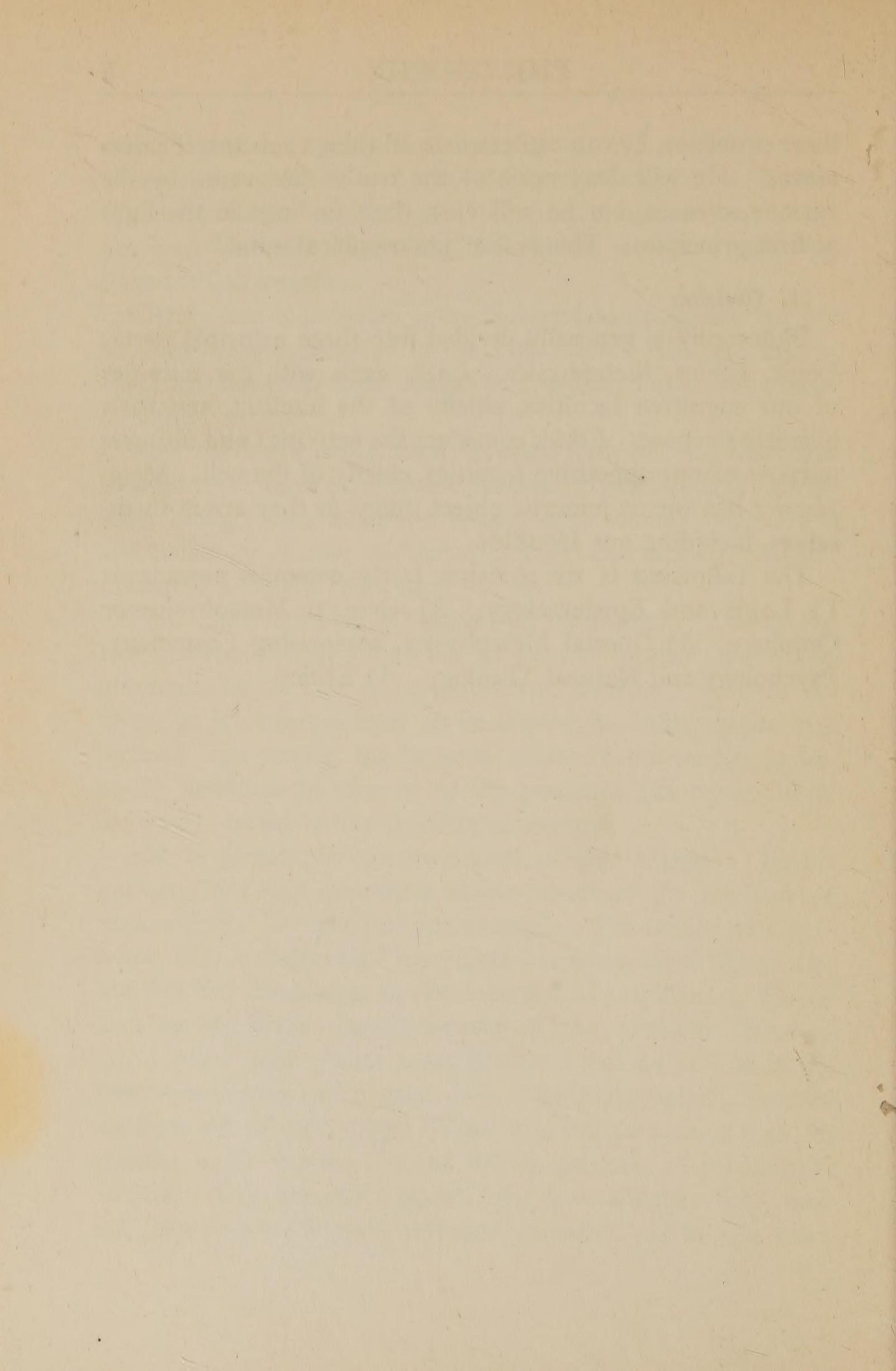
these problems, he can contemplate all things *sub specie aeternitatis*. He will deny none of the truths discovered by the various sciences, but he will view their findings in the light of first principles. This is the "philosophical mind."

II. Division

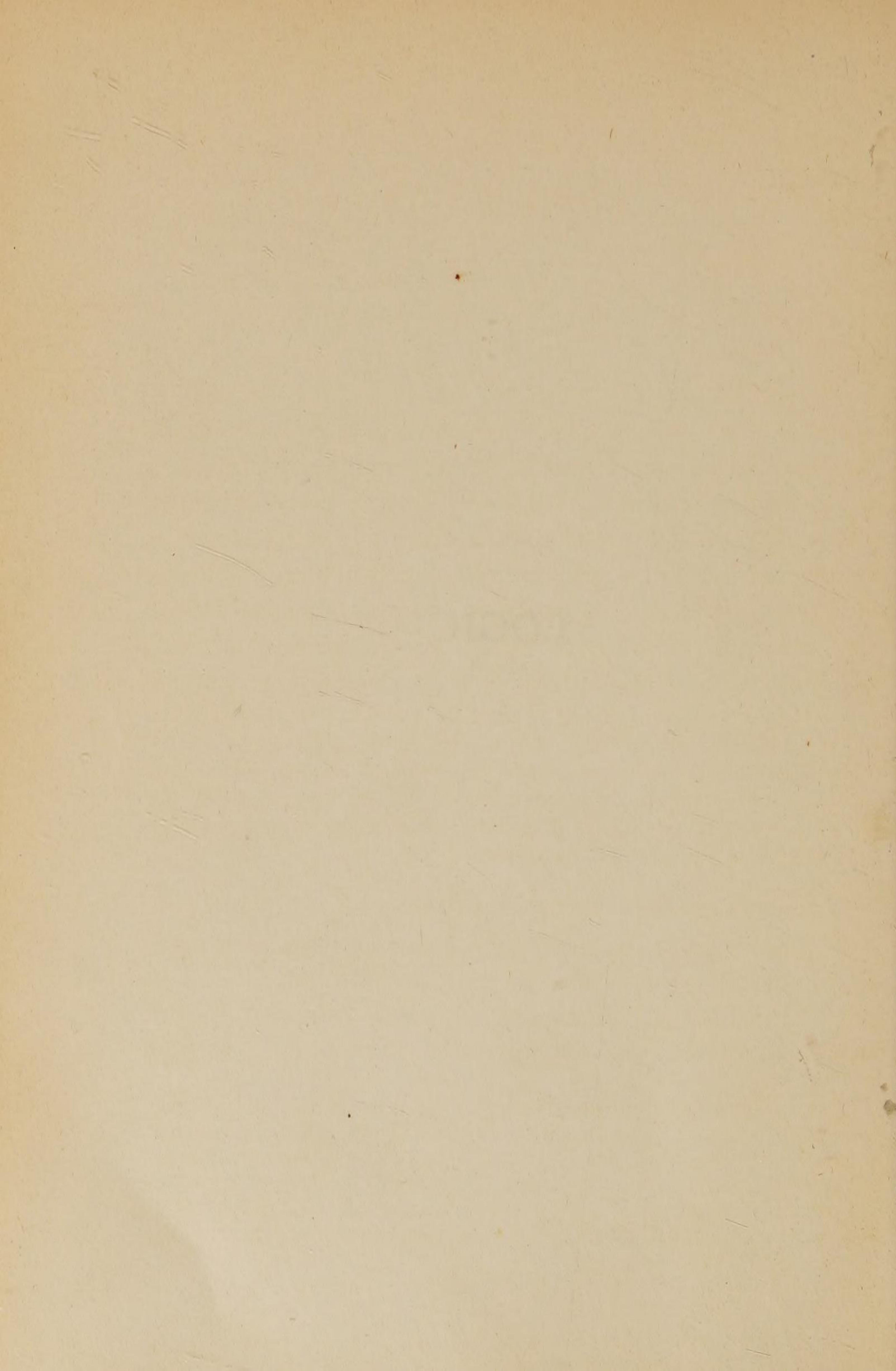
Philosophy is generally divided into three principal parts: Logic, Ethics, Metaphysics. *Logic* deals with the activities of our cognitive faculties, chiefly of the intellect, and their ultimate purpose. *Ethics* considers the activities and ultimate purpose of our appetitive faculties, chiefly of the will. *Metaphysics* has for its material object things as they are in themselves, including our faculties.

The following is the division fairly common nowadays:

- 1) Logic and Epistemology.
- 2) General Metaphysics or Ontology.
- 3) Special Metaphysics, comprising Cosmology, Psychology and Natural Theology.
- 4) Ethics.



LOGIC



INTRODUCTION

1. Definition

Logic is the *science and art of right reasoning*.¹

To explain :

Science ('scientia') means to know a thing through its causes, i.e. to know not only that a thing *is* so, but also that it *must* be so, and *why* it must be so.¹—*Art* is the habit of doing a complex operation easily and correctly; e.g. playing the piano.—*Reasoning* means passing from one thing known to another as yet unknown; inferring, concluding. Thus we may reason: Metals sink in water; but iron is a metal; therefore iron sinks in water.—*Right* (correct) means according to certain rules or laws. Logic is the art of thinking straight.

Note that *right* (correct) is not the same as *true*. True is what agrees with reality; right is what agrees with a rule. A proposition is true when it enunciates what is so; e.g. Albany lies west of Boston. But reasoning is a process. Now a process is neither true nor false. It is right if done in accordance with rules; else it is wrong or incorrect.

2. COROLLARIES OF THIS DEFINITION :

- a. Logic, being a *science*, teaches us how we must proceed in our reasonings, and why we must proceed so.
- b. Logic, being also an *art*, supposes exercise, practice, unceasing drill in reasoning correctly. The study of logic is

¹This is the meaning given to 'scientia' by Scholastics. It is derived from their axiom: "Scientia est de universalibus." In modern usage, 'science' may mean any or all of four things: a) the finding of *facts*, b) the establishing of *laws* or *classes*, c) *theories* (mechanical, quantitative, structural) to explain both facts and laws, d) the so-called scientific *method*, which proceeds chiefly by way of observation and experiment.

a waste of time unless reasoning correctly becomes a habit with us.

c. The material object of logic is reasoning; the formal object of logic is correctness.

3. Division

The ordinary process of reasoning consists in this that, two propositions being known, a third is derived (inferred) from them; e.g. all men are born in original sin; now John is a man; therefore he was born in original sin. Correctness in reasoning consists in joining three propositions so that, two being granted, the third must also be granted.

However, before we can be sure that our conclusion is true, we must make sure that we understand fully what the single propositions mean or imply. Hence logic treats not only of the reasoning process as such, but also of the nature of propositions, and determines the exact meaning of different kinds of propositions.

Moreover, to make sure that we understand the full import of the single propositions, we must be sure that we understand the parts of which they are made up. These parts are, in categorical propositions, called terms. Hence logic also treats of terms.

These two parts are, however, subsidiary and preparatory.

Lastly, the search for the truth is often very complicated and implies a long series of steps, as when we want to find out what a certain chemical substance is. In this search we must be methodical. Logic also gives us a few general rules to be followed in the search of all truth.

Hence we shall divide this treatise into 4 parts:

1. The Term
2. The Proposition
3. Reasoning
4. Method

Part I

THE TERM

The categorical proposition consists of two terms: the subject and the predicate. Thus if I say: man is mortal, the two terms 'man' and 'mortal' are joined by the verb 'to be.'

Now before pronouncing a proposition like this, I had already pronounced it in my mind, as it were. This internal act of the mind is called a judgment. It is only after formulating a judgment in our mind, that we utter it to those with whom we speak. To act otherwise, i.e. to talk before we think, would be silly.

But how do judgments come about in our minds? What do they *suppose* logically to have preceded in our mind?

A judgment supposes logically three steps:

a. There must be *two ideas*, viz. the subject (S) and the predicate (P). That is to say, I must know what my subject stands for and what is meant by my predicate. How indeed could I pronounce the above judgment even in my mind, unless I knew beforehand what is meant by 'man' and what by 'mortal.'

b. But two ideas or terms juxtaposed do not make a judgment. The judgment further supposes a *comparison* between them, to see if they are to be joined or separated, to see if I ought to say that man is mortal, or that man is not mortal.

c. Lastly, the judgment supposes *insight* into the mutual relation between S and P. Else we judge blindly.

For the present, however, we are only concerned with the fact that the two terms of a proposition correspond to two

ideas in the mind. Hence before considering terms proper, we shall first speak of ideas or concepts.

I. IDEAS

1. DEFINITION

1. An idea or concept, considered subjectively, is an *act* of the mind by which we conceive something; considered objectively, it is *that which* we conceive by such an act.

Three important remarks:

a. Conceiving, in scholastic terminology, is not the same as seeing with our eyes or hearing with our ears; nor is it imagining; nor may it be used synonymously for any of these acts. Conceiving is an act of the *intellect*, a spiritual faculty (as will be proved in psychology). The differences will be discussed further in epistemology (thesis 8).

b. The two aspects, the subjective and the objective, are *essential* to every cognition. You cannot have one without the other—just as you cannot have a sale without a purchase. Still, it is impossible to give one definition that would cover both aspects; their natures differ too much.

c. Logic deals primarily with *objective* ideas; ideas as acts of the mind pertain to the subject-matter of psychology.

2. Simple Apprehension

The act of conceiving something is also called a simple apprehension. It differs, however, slightly from the idea. Simple apprehension is the *process* by which we acquire ideas or concepts; ideas or concepts are the result of such processes.

Two remarks:

a. The student must not be misled by the name 'simple apprehension.' Logicians call it 'simple' merely in opposition to the judgment, in which the mind combines or separates two

ideas. The process by which we gain so-called primitive ideas, is indeed simple and easy; but much labor is needed to acquire others, especially systematic ideas.

b. According to Scholastics, all our ideas originate, in the last analysis, from our experience (external and internal): "Nihil est in intellectu nisi quod prius fuerit in sensu." We elaborate the data of experience into ideas by abstraction, reflection, comparison, analysis, synthesis, reasoning, etc. But all this pertains to epistemology and psychology.

3. Comprehension and Extension of Ideas

The comprehension (or connotation) of an idea is the sum-total of the notes which constitute the (objective) idea; e.g. the concept of 'man' is made up of 'animal' and 'rational.' The extension (or denotation) of an idea is the sum-total of the things of which that idea can be predicated; the extension of 'man' are all men. The things of which an idea can be predicated are called its 'inferiors.'

Rule: The greater the comprehension of an idea, the less its extension—and vice versa.

2. DIVISION

1. As regards comprehension:

A *simple* idea contains only one note, i.e. it cannot be further analyzed or reduced to simpler concepts. Such are the concepts of being, substance, essence etc.—A *composite* idea contains several notes. Thus the concept of man contains the following notes: rational, sentient, living, substance etc.

2. As regards extension:

a. A *universal* (general) idea is one which can be predicated of every individual of a class; e.g. 'man' can be predicated of Peter, Paul, John etc., in fact of *all* men, whether past, present or future.

As this is one of the most fundamental concepts of scholastic philosophy; the following explanations will not be deemed superfluous.

Universal ideas are *abstract*. That is, they omit the individuality with which their inferiors are vested in reality.

A universal idea is often defined as one which expresses something common to many, "*one in many*" (unum in multis). The definition is acceptable, but it must be understood rightly; viz. α) the preposition '*in*' means *predicability in recto*; β) the term '*many*' must be understood as '*all of a class*'; γ) above all, the '*one thing*' must express an essential and absolutely necessary element of each of the class; in fact, the term '*note*,' used in the above definitions, means primarily an essential element, a constituent part.

Scholastics carefully distinguish between α) universal concepts, β) analogous concepts, γ) the concept of God as known through revelation. The (intrinsically) *analogous* concept, though one, is not predicated of many in exactly the same sense, whereas the universal concept is. The concept of *God* is not predicated of the three persons of the Bl. Trinity so that there would be three Gods; a universal concept is predicated of many so that they constitute a number and can be counted.

A strictly *universal* concept, therefore, is defined by Scholastics as "*one thing capable of being predicated of many in the same sense and of being multiplied in them*."

Scholastics further distinguish between *direct* and *reflex* universal ideas. But this distinction had better be reserved for a later chapter.

b. A *particular* idea is a universal idea restricted to an indefinite part of its extension; e.g. *some man, some men*.

c. A *singular* idea is one which denotes a definite indi-

vidual; e.g. John Briggs, this book, the house in which I live, my automobile.

d. A *collective* idea expresses many together; e.g. a family, an army, a crowd.—Note that a collective idea may again be universal or particular or singular; e.g. family, some family, this family.

3. RELATION OF IDEAS

There may, of course, be various kinds of relations between ideas. But in the categorical proposition, the model-form of our sentences, we consider only two: *identity* and *diversity*. We say either 'is' or 'is not.' By the former we express identity between S and P, by the latter diversity.

However, both identity and diversity may be either formal or objective.

Two ideas are *formally* identical or diverse, according as they have the same notes (comprehension) or not. Two ideas are *objectively* identical or diverse, according as they are found in the same individual or not.

Moreover, both identity and diversity may be *complete* or *partial*. Thus between 'man' and 'rational animal' there exists formal and complete identity; but between 'man' and 'animal' the identity is indeed formal, but only partial. The identity between 'Peter' and 'white' is objective and partial.

II. TERMS

1. DEFINITION

Terms are the parts which immediately constitute a simple proposition. In the categorical proposition, they are S and P.

Terms are words, and signify something. By them we ordinarily manifest our thoughts to others. Hence it is customary with logicians to insert here a few remarks about signs, words, speech.

1. A *sign* is something which leads us to know something else; e.g. the wooden Indian before a cigar store. There are various kinds of signs:

a. A *natural* sign is one which signifies something else by its very nature; e.g. a groan signifies pain; a blush signifies shame etc.—An *arbitrary* sign is one which signifies through the free institution of man or God; e.g. the flag signifies the country.¹

b. Some signs merely indicate the existence of something else; thus the wooden Indian. Other signs stand for the thing signified; e.g. the keys of the city, which were handed over to the conqueror.

2. A *word* is an articulate sound signifying something.—*Speech* is a connected series of words.

Though speech is natural to man, yet the words used are *arbitrary* signs: else there would be no difficulty in understanding a foreign language. Moreover, words indicate the existence of the corresponding idea, but they stand for the things themselves. As Suarez says: The teacher uses words, because he cannot take the things themselves into the school-room.

2. DIVISION

1. As regards comprehension:

A *simple* term consists of only one word (article not counted). A *complex* term consists of more than one word; e.g. the book I gave you.

A complex term contains two parts: a *subject* and its *modifier*. The modifier either restricts the extension of the subject (e.g. the book I gave you), or it merely explains the subject without restricting its extension (e.g. mortal man).

2. As regards extension:

A *common* term is the name (word) applicable to each of a

¹There are also signs which are partly natural and partly arbitrary; e.g. the sacraments.

group of individuals; e.g. tree, man.—A *proper* term is the name proper to an individual; e.g. Julius Caesar.

A common term may or may not be modified. If it is not modified it is called an *indefinite* term, because its extension is not at once evident; e.g. tree, a tree, the tree. If it is modified, we have:

a. *Universal* (general) terms: e.g. all men, every man, no man, nobody.

b. *Particular* terms: e.g. some man, some men, somebody.

c. *Singular* terms: e.g. this man, the man I saw yesterday.

d. *Collective* terms: all men together.

3. As regards definiteness of meaning: (very important).

A *univocal* term is predicated of many in exactly the same sense; as when I say: Peter is a man; Paul is a man. The term 'man' is used in exactly the same sense in both propositions.—An *equivocal* term is predicated of many in an entirely different sense; as when I say: the robin is a bird; Peter is a bird; the term 'bird' is used in meanings altogether different.—Lastly, an *analogous* term is predicated of many in a sense partly the same and partly different; as when we speak of the foot of a man and the foot of a mountain.

Almost any word may be used univocally or equivocally or analogously. Hence if asked whether a certain word is one or the other, first inquire of which things it is to be predicated. Thus the word 'bird' is predicated univocally of a robin and a sparrow.

3. SUPPOSITION OF TERMS

1. Definition

The supposition of a term is the *definite meaning* which a given term has in a given proposition.

Every term, even when used univocally, may be taken in various meanings (as will appear presently from the divisions). Now, in reasoning we want to arrive at a very defi-

nite conclusion; but this is impossible unless each proposition and each term has an absolutely definite meaning. Besides, each term occurs twice in the regular process of reasoning (as we shall see), and we must be very careful to use it both times in the same sense; else the whole process of reasoning is vitiated.

Hence the exceeding importance of this (difficult) chapter.

2. Divisions

There are first of all two divisions of supposition, which, however, rarely mislead one, because the change from one to the other would be too glaring. a) A term may be taken in its *proper* sense or *metaphorically*. Thus if I were to argue: All birds have feathers; but Peter is a bird; therefore Peter has feathers: the term 'bird' would be used once in its proper sense and once metaphorically. b) A term may be taken *materially* (i.e. for the word itself) or *formally* (i.e. for that which it signifies). Thus when I say: Cicero is a word of three syllables, I use 'Cicero' in the material supposition; but when I say: Cicero was a great orator, I use it in the formal supposition.

The following divisions refer to proper and formal supposition only. They are of greater importance for logic, because the danger of changing inadvertently from one to the other is greater.

a. *Real* and *logical* supposition:

A term is said to have real supposition if used for the thing as it is in itself; e.g. Peter is a man; man is an animal.—A term is said to have logical supposition if used for the thing as it can only be in the mind; e.g. man is a species.¹

The further divisions refer only to real supposition.

¹This division will be better understood after the reflex universal (p. 58) has been mastered.

b. The supposition of a term is *absolute* or *personal*, according as it refers to the comprehension or extension. The choice often depends on the intention of the speaker. If he attends to the notes contained in the idea expressed by the term, he uses the term in absolute supposition ; if he attends to the individuals of which the term may be predicated, he uses it in personal supposition.

Note that the expression 'personal' is a trifle misleading. Also terms which do not refer to persons at all, may be used in personal supposition ; e.g. all trees, all horses.

c. Personal supposition of common terms :

A common term, when used in personal supposition, either stands for all its inferiors or for only a part of them. In the former case, the supposition is called *universal*, in the latter *particular*. Modifiers indicating universal supposition are : all, every, any, each, none ; e.g. all men are mortal ; no metal has life. Modifiers indicating particular supposition are : some, a or an ; e.g. some men are deceitful ; a man was shot.

But both universal and particular supposition may again be subdivided :

a) A term with universal supposition may be used either *distributively* or *collectively*, according as it stands for each single individual or for all together ; e.g. all men are mortal ; all men (together) are mankind.

β) A term which has particular supposition, may stand either for a *definite* or an *indefinite* part of its inferiors ; e.g. a train was wrecked ; a train is necessary to get to New York.¹

Compare the meanings which the word '*universal*' has, according as it refers to a concept, a term, or the supposition.

¹The word 'God,' when it stands for all three Persons, has a quasi-universal supposition ; e.g. God is all-wise. But if it stands for only one of the three Persons, it has a quasi-particular supposition ; e.g. God died for us.

Part 2

THE PROPOSITION

1. Definitions

a. A proposition is a *complete assertion*; e.g. John is an engineer; baseball is a major sport. An incomplete assertion is one which does not make complete sense; e.g. while John was asleep.

Any book that we read, all our conversation is made up of *sentences*. As trees make the forest, as houses make the city, so sentences make the book and the speech. They are the ultimate units; for each sentence expresses one, indivisible thought.

But not all sentences are alike. Take any of Shakespeare's dramas, and you will read there all kinds of sentences. Some assert, some contain a wish or a command, some are merely an exclamation or greeting. Now Logic deals only with *assertions*. The reason is this. The material object of logic is reasoning; now reasoning is a purely intellectual process, whereas wishes, commands etc., contain emotions and affections of the will, which are wholly outside the sphere of logic.

b. The proposition may also be defined as the *external manifestation of a judgment*.

The judgment, taken subjectively, is an act of the mind by which we affirm or deny something; e.g. man is mortal; this book is not mine. The judgment, taken objectively, is something which can be affirmed or denied (which is true or false); it may also be defined as the *relation existing between two terms*.¹

¹Read Gruender, Exper. Psych. p. 359-363.

c. What was said above (p. 12) about ideas, also applies here. Logic is concerned primarily with *objective* judgments, only indirectly with judgments as acts of the mind. •

2. Division

That which is affirmed or denied in a judgment, is always a *relation* between two (objective) ideas. But this relation may be a) one of identity or diversity, b) some other relation, especially one of dependence. Accordingly, logicians divide judgments and propositions into two principal classes: categorical and hypothetical.

CHAPTER 1

The Categorical Proposition

I. DEFINITION

A categorical proposition is one which asserts the *identity* (or *diversity*) of two objective concepts. The identity (or diversity) asserted may be either formal or merely objective, complete or partial. In definitions, it is always formal.

A categorical proposition contains 3 *elements*: a) the subject, i.e. that of which something is asserted; b) the predicate, i.e. that which is asserted of the subject; c) the copula, which expresses the relation between S and P.

The Scholastics call S and P the *matter* of the proposition, while the copula is the *form*.

In a strictly logical proposition, the copula is always the verb '*to be*' in the *present tense* and in the *indicative mood*. The reason is that this alone expresses identity (or diversity) and nothing else. Hence, if in reasoning a proposition occurs which is not made in this manner, we must first change it into one which clearly contains the three elements; e.g. Peter walks = Peter is walking; Cæsar defeated the Gauls = Cæsar is one who defeated the Gauls. As is clear from these examples, this same process is necessary to know what precisely is the predicate (P). Thus in the proposition "Peter walks" the predicate is not 'walks,' but 'walking.'

In every-day usage, we often employ the verb 'to be' where it does not express mere identity, but implies some *further relation* between two concepts. Thus when we say that "two times

two is four," the verb 'is' really means 'is equal to,' 'is equivalent to.' The same holds for algebraic formulas.¹ Likewise, when the chemist says that salt is NaCl, he means that salt originates out of Na and Cl and may again be decomposed into them; if he meant to express pure identity, he would go beyond his evidence.

Logical Use of Propositions:

In the process of reasoning, as standardized by Aristotle and the Scholastics, attention is chiefly paid to two things: a) the *extension* of the *terms* employed; b) the *quality* and *quantity* of the *propositions*. Hence this chapter is of fundamental importance in logic.

a. The *quality* of a proposition depends on its copula. A proposition is affirmative or negative, according as the copula is 'is' or 'is not.'

Moreover, from the quality of a proposition we can figure out the extension of its *predicate*. To wit: a) the predicate of an affirmative proposition has *particular* supposition (except in complete definitions, in which P is universal); b) the predicate of a negative proposition has *universal* (distributive) supposition.

b. The *quantity* of a proposition depends on the extension of its subject. A proposition is singular, if its subject is a singular or proper term; e.g. this man is a crook; Peter died.—A proposition is universal, if its subject is a universal term; e.g. all men are mortal.—A proposition is particular, if its subject is a particular term; e.g. a train was wrecked.

¹For this reason, so-called "symbolic" Logic differs fundamentally from "traditional" Logic; nor can it ever become a substitute for the latter. Also it excludes a priori whatever is shorn of quantity, and that means the whole of metaphysics and anything spiritual. See Joyce p. 146; Lahr I p. 509.

c. Combining the two aspects of quality and quantity, the Scholastics designated the various propositions as follows:

- A universal affirmative proposition: all, every, each.
- E universal negative proposition: no, none, nobody.
- I particular affirmative proposition: some, somebody.
- O particular negative proposition: some—not.

II. DIVISIONS

At times, propositions contain more than one complete assertion. Now, in order to make sure that our reasoning is correct, we must know how many complete assertions are contained in the various kinds of propositions. For this reason, we shall examine them one by one.

A *simple* proposition is one in which none of the elements is modified, i.e. in which S and P are simple terms, and the copula is 'is' or 'is not.' Such a proposition evidently contains only one assertion.

Other propositions are: complex, compound, modal. These must be examined in detail.

1. COMPLEX PROPOSITIONS

A complex proposition is one in which the subject or the predicate or both are complex terms; e.g. the book I gave you is a novel by Isabel Clark.

Now a complex term, as we saw, consists of two parts: the subject and its modifier; moreover, the modifier may be restrictive or explanatory. Hence the following division:

a. A *restrictive* proposition is one whose subject is a common term restricted to a definite part of its extension; e.g. the book I gave you is a novel.—This is really a single assertion.

b. An *explicative* proposition is one whose subject is a common term modified by an explanation; e.g. mortal man is

subject to many ills.—This is really equivalent to two assertions: a) man is mortal; b) man is subject to many ills.

This last example shows us what the Scholastics mean by *distinguishing* a proposition. A distinction brings out the two assertions contained in an apparently simple assertion which seems half true and half false. The distinction grants the part which is true, but denies the part which is false. Apply this also to the following divisions.

2. COMPOUND PROPOSITIONS

A compound proposition is one which contains several subjects or several predicates. Accordingly, a compound proposition contains really several assertions. But this may be more or less obvious; hence logicians divide compound propositions into two principal classes:

1. Propositions in which the composition is *obvious*:

a. A *copulative* proposition is one in which several subjects or predicates are joined by 'and' or 'neither—nor': Peter and Paul died; neither Peter nor Paul died.

b. An *adversative* proposition is one in which several subjects or predicates are joined by 'but'; e.g. Cicero was an orator, but no statesman.

Both copulative and adversative propositions contain as many assertions as there are elements joined.

2. Propositions in which the composition is *less obvious*:

a. An *exclusive* proposition is one in which S or P is modified by 'only,' 'alone' etc.; e.g. God alone is omnipotent; John is only an engineer.

Exclusive propositions, though apparently simple, really contain two assertions: one affirmative, the other negative; e.g. God alone is omnipotent = God is omnipotent, and no other being is omnipotent; John is only an engineer = John is an engineer, and he is nothing else.

b. An *exceptive* proposition is one in which the subject is

modified by 'except,' 'with the exception of' etc.; e.g. all animals, except man, are irrational.

Exceptional propositions contain two assertions: one negative, the other affirmative; e.g. all animals, except man, are irrational = a) man is not irrational, b) all other animals are irrational.

One
c. A *comparative* proposition is one in which the predicate is affirmed (or denied) of one subject in a greater or lesser degree than of another; e.g. Plato is wiser than Socrates.—Another form of the comparative proposition is the one in which the predicate is affirmed (or denied) of both subjects in the same degree; e.g. Plato is as wise as Socrates.

A comparative proposition really contains three assertions; e.g. Plato is wiser than Socrates = a) Plato is wise, b) Socrates is wise, c) the wisdom of Plato is greater than that of Socrates. Ordinarily, however, the first two are understood, or else the proposition is silly. Comparative propositions may then be regarded as *simple*.

3. MODAL PROPOSITIONS

and so
a. A modal proposition is one which distinctly enunciates what *kind* of identity (or diversity) there is between S and P. There are 4 such modes: necessary, contingent, possible, impossible. *Necessary* is that which cannot be otherwise (must be so); e.g. God is necessarily just.—*Contingent* is that which can be otherwise; e.g. the world exists contingently.—*Possible* is that which can be; e.g. it is possible for Peter to fall.—*Impossible* is that which cannot be; e.g. it is impossible for water to flow uphill.

A proposition, to be modal, must enunciate the mode distinctly and *explicitly*. But this may be done in various ways; e.g. it is necessary that God be just—God is necessarily just—it is necessary for God to be just—God cannot but be just etc.

b. *Quality and Quantity of Modal Propositions:*

A modal proposition is *affirmative* or *negative* according as the mode is affirmed or denied; e.g. it is impossible for a square to be round; it is not impossible that the world be annihilated.—A modal proposition whose mode is either 'necessary' or 'impossible' is considered as a *universal* proposition, because it is true for all and always.—A modal proposition whose mode is 'contingent' or 'possible' is considered as a *particular* proposition.

c. *Number of Assertions:* A modal proposition consists of two assertions, unless the mode be 'possible.' In the latter case, it contains only one assertion.

24, 5, 6, 7,

Omit

CHAPTER 2

The Hypothetical Proposition

I. DEFINITION

A hypothetical proposition is one between the parts of which there exists a relation of *dependence, opposition, likeness* etc.

Therefore hypothetical propositions differ from categorical both in matter and form. a) The *matter* of a hypothetical proposition is not S and P, but the parts between which such a relation is asserted. b) The *form* is not identity or diversity expressed by the copula, but some other relation indicated by the conjunctive particles.

The hypothetical proposition as such contains *only one* assertion.

II. DIVISIONS

1. A conditional proposition is one in which two parts are joined by 'if,' 'unless' etc. ; e.g. if it had rained last night, the road would be wet ; unless his temperature goes down, he will die.

The part introduced by 'if' is called the *antecedent*, the other part the *consequent*. Hence the conditional proposition may also be defined as one which asserts the dependence of consequent upon antecedent.

This dependence is always *logical*, i.e. we always pass from the antecedent to the consequent in our thought and speech. But sometimes it is merely logical, at other times it is also *real*, i.e. when the consequent depends on the antecedent in reality. Thus if I say: If the ground is wet, it must have rained—the dependence of the consequent on the antecedent is purely logical. But if I say: If it had rained, the ground would be wet—the dependence is also real.

2. A *disjunctive* proposition is one in which the subject or the predicate consists of parts which exclude each other ; e.g. either Christ or Pilate erred ; the earth is either at rest or in motion.

3. A *conjunctive* proposition is one which denies that two predicates together can be true of the same subject (at the same time) ; e.g. you cannot serve God and mammon ; you cannot eat your cake and have it.¹

4. A *relative* proposition is one in which two parts are joined by 'as—so,' 'where—there' etc. ; e.g. as we live, so we shall die ; where your treasure is, there also is your heart.

¹This as well as the disjunctive proposition is rather a combination of hypothetical and categorical proposition.

Part 3

REASONING

The process of reasoning consists in this that we pass (mentally) from one thing to another, from one proposition to another, from what is known to what is unknown. Thus from the existence of this world we may reason to the existence of God; from our actions we reason to the freedom of the will etc.

As before, so in reasoning we must distinguish between a) the process of the mind and its external manifestation in speech, b) between the subjective and the objective aspect of the mental process. Logic considers primarily the process of the mind and its objective aspect.

Here begins logic proper. For it is precisely the purpose of logic to insure *correctness* in the process of reasoning. Logic lays down (and proves) the *rules* which will guard us against making false steps and thus falling into error. In every-day life, we rarely heed these rules; but the result is that we often make mistakes, unless the inference is easy and obvious. Cf. Lindworsky ch. 6.

There are two ways of passing from one proposition to another: either without or with the aid of a third proposition. Hence the usual division into immediate and mediate inference. But mediate inference is again threefold: by syllogism, by logical induction, by cumulative evidence.

CHAPTER 1

Immediate Inference

Immediate inference, considered subjectively, is a process of the mind by which we pass from one proposition to another without the aid of a third. Objectively considered, it is the connection existing between two such propositions.

We often proceed in this manner in daily life. Thus if we know that John was in Buffalo at a specified time, we immediately infer that he was not in Boston at the same time. Logic, however, considers only such pairs of propositions in which the terms are the *same*.

There are various ways of passing thus immediately from one proposition to another. We shall consider three: Opposition, Conversion, Possibility and Existence.

I. OPPOSITION

1. Definition

Opposition exists between two propositions which, having the same terms, differ in quantity or quality or both.

The terms of both propositions must also have the same *supposition*. But common terms, when used in personal supposition, need not have the same extension (as will be clear from the divisions).

2. Division

a. *Contradictory* opposition exists between two propositions which differ in quantity and quality; e.g. all men are white—some man is not white.

Such opposition exists between A and O, between E and I.

✓ Contradictory opposition in the strict sense of the word exists between two propositions one of which asserts just enough to destroy the other (neither more nor less); e.g. all men are white—some man is not white.

No such contradictory opposition exists between the following pairs: a) All men are white—no man is white; b) all men are white—some men are not white; c) all men are white—Peter is not white. The last two pairs are often called contradictories in a wider sense.

b. *Contrary* opposition exists between two universal propositions which differ in quality; e.g. all men are white—no man is white.

Such opposition exists between A and E.

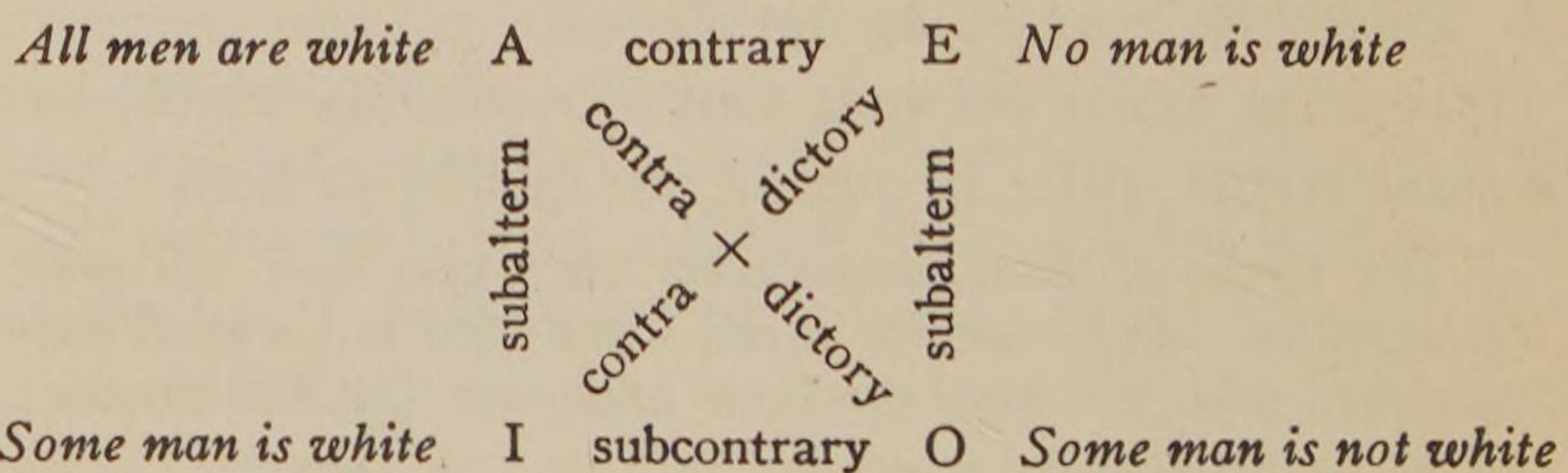
c. *Subaltern* opposition exists between two propositions which differ only in quantity; e.g. all men are white—some man is white; no man is white—some man is not white.

Such opposition exists between A and I, between E and O.

d. *Subcontrary* opposition exists between two particular propositions which differ in quality; e.g. some man is white—some man is not white.

Such opposition exists between I and O.

Square of Opposition



3. Rules of Inference

✓ a. Two (strictly) *contradictory* propositions can neither be true nor false together. Hence if one of them is true, I can at once infer that the other is false—and vice versa.

b. Two *contrary* propositions cannot be true together, but

A = Affirm Univ E = Neg ~~Part Univ~~

I = Affirm Part O = Neg Part

they may both be false. Hence if one of them is true, I can at once infer that the other is false—but not vice versa.

c. As regards *subaltern* propositions: a) If the universal proposition is true, the particular is also true—but not vice versa; b) if the particular proposition is false, the universal is also false—but not vice versa.

d. As regards *subcontrary* propositions: If one is false, the other is true—but not vice versa.¹

Omit ^{ups} FINDING THE CONTRADICTION:

As is clear from a comparison of the laws given above, contradictory opposition offers the widest range of immediate inference. Hence such inferences are very common among philosophers. However, it is not always easy to *find* the strict contradictory of a given proposition. The rule given above is very general; but there are some *special cases* to be considered:

a. The contradictory of a *singular* proposition is formed by merely changing the quality; e.g. Peter is sick—Peter is not sick; this is a drama—this is no drama. In like manner is formed the contradictory of a proposition whose subject has either *logical* or *absolute* supposition; e.g. man is a species—man is not a species; brute animals have no intellect—brute animals have intellect.

b. To form the contradictory of *complex* and *compound* propositions which contain more than one assertion, deny disjunctively all single assertions; e.g. Peter and Paul died—either Peter or Paul did not die.

c. *Modal* propositions are contradicted by changing the mode to its opposite, viz. 'necessary' to 'contingent' or vice versa, 'possible' to 'impossible' or vice versa.

¹These rules are self-evident; their best proof consists in clarifying the terms and in apt illustrations.

d. To form the contradictory of a *hypothetical* proposition, deny the relation asserted; e.g. if it had rained, the road would be wet—even if it had rained, the road would not be wet.

However, a) to contradict a *disjunctive* proposition, we affirm a third possibility; e.g. Peter either sits or walks—Peter may neither sit nor walk. b) To contradict *conjunctive* propositions, change ‘nobody’ to ‘somebody’; e.g. nobody can serve God and mammon—somebody can serve God and mammon.

II. CONVERSION

1. Definition

Conversion is the process by which we transpose the subject and predicate of a proposition without changing its truth. That is, instead of saying S is P, we say P is S. As for instance: No man is a lion—no lion is a man.

“*Without changing its truth*” means that the new proposition may not assert *more* than did the one we began with. Or, to use logical terminology: the extension which a term had as S or P, may not be *increased* through the process of conversion. Or again: if a term was particular before the process of conversion, it must not become universal (distributive) through the process. Thus “all geniuses have big skulls” may not be converted into “all who have big skulls, are geniuses.”

Never convert a proposition unless you have first reduced it to its logical form, i.e. with the copula inserted *explicitly*.

2. Division

a. *Simple conversion*: S and P are transposed without change of the extension of either; e.g. no man is a lion—no lion is a man; some boys are clever—some who are clever, are boys.

Only E and I propositions can be converted simply. However, simple conversion may be resorted to in case of A propositions which express complete definitions; e.g. all men are rational animals—all rational animals are men.

b. *Accidental conversion*: S and P are transposed, but the extension of one is lessened; e.g. all lawyers are men—some men are lawyers.

Such conversion is allowed in A and E propositions.¹

III. POSSIBILITY AND EXISTENCE

Refer to exercise on page 91.

1. The following inferences can be drawn immediately:
a) if a thing exists, it is possible; b) if a thing is impossible, it does not exist. Thus soul and body are joined in man; therefore they can be joined. On the other hand, a square circle is impossible; therefore it does not exist anywhere.

2. But we cannot infer immediately that a) if a thing can be, it exists, or b) if a thing does not exist, it cannot exist. Thus another world is possible, no doubt; but from this we cannot argue immediately that it does exist. On the other hand, our earth has only one moon; but from this I cannot immediately infer that another moon is impossible.

3. The Scholastics expressed these 4 rules thus:

- Ab esse valet illatio ad posse. *from existence the relation of possibility is valid*
- A non posse valet illatio ad non esse. *from impossibility the relation of non-existence is valid*
- A posse non valet illatio ad esse. *from possibility you cannot argue existence*
- A non esse non valet illatio ad non posse. *from non-existence, not valid to argue non-possibility*

¹ Scholastics also mention a third kind of conversion. We omit it because it is of no practical value.

MOST IMPORTANT

CHAPTER 2

The Syllogism

Mediate inference (reasoning in the strict sense of the word), considered subjectively, is that process of the mind by which we pass from one proposition to another with the aid of a third. Objectively, it is the connection between three such propositions.

The most perfect form of mediate inference is the *syllogism*, in which the propositions are so arranged that the connection between them becomes immediately evident. It is this we are going to study.

There are two kinds of syllogisms: categorical and hypothetical. The categorical syllogism consists of three categorical propositions; the hypothetical syllogism has a hypothetical proposition for its major premise, though the other two propositions are, as a rule, categorical.

The principal kind is, of course, the categorical syllogism; Aristotle, the founder of scientific logic, does not even discuss the other.

I. THE CATEGORICAL SYLLOGISM

1. ITS NATURE AND PROPERTIES

1. Definition.

2. B.
The categorical syllogism is a process of the mind by which we learn the identity or diversity of two objective concepts by comparing them both successively with a third.

Example: All men are mortal.

Now Peter is a man.

Therefore Peter is mortal.

Explanation: In every categorical judgment we assert the identity or diversity of two objective ideas. But, as we saw above, before the assertion is made, we *compare* the two ideas

with each other to see if they are or are not identical. Only after and because we have by such comparison gained an *insight* into their mutual relation, do we judge.

Now, sometimes we gain this insight by merely considering S and P; as e.g. the whole is greater than its part; this tree is green. These are called *immediate* judgments. At other times, things are not so simple. Even after maturely considering S and P we may be unable to see their mutual relation. It is then that we employ a third idea, a *middle term*, and thus hope to arrive at a conclusion. Judgments that come about in this manner, are called *mediate*.

In the above example, for instance, the question is to learn whether Peter is mortal or not. Let us suppose that we cannot settle the question by merely considering S and P, viz. 'Peter' and 'mortal.' We then take a third idea, viz. 'man,' and compare both S and P with it successively. Thus we arrive at our conclusion. (How to find the *right* idea, i.e. one that will help toward the desired conclusion, is a special chapter.)¹

2. Matter and Form

a. The *remote matter* of the categorical syllogism are 3 ideas or terms: S, P and M (the middle term).—The *proximate matter* are 3 propositions: two premises, in which S and P are separately compared with M, and the conclusion, in which the relation seen to exist between S and P is asserted. The first premise is called the *major premise*, the second the *minor*; both together are called the *antecedent*. The conclusion is also called the *consequent*.

b. The *form* of every syllogism is the *consequence*, i.e. such a connection between premises and conclusion that if the premises are granted, the conclusion is also to be granted.

¹See Lindworsky ch. 7.

(How they must be connected, will be explained graphically under 'figures' and 'moods.')

3. Conclusion and Consequence

a. From the above it is evident that conclusion and consequence are not the same. The conclusion is a proposition, the consequence is a certain connection between propositions. The conclusion is the goal at which we arrive, the consequence is the correct process of arriving at the goal. The conclusion is either true or false, the consequence is either right or wrong.

b. Nevertheless, the conclusion is not a mere proposition, but a proposition *as derived* from premises. Hence it may be considered under two aspects: a) as a proposition, and as such it is true or false; b) as derived from the premises, and then it may also be called correct or incorrect.

Hence, if the conclusion be considered under both aspects, it may be a) correct and true, or b) correct and false, or c) incorrect and true, or d) incorrect and false.

Examples: All men are mortal.

Now Peter is a man.

Therefore Peter is mortal.

(Correct and true)

All men are angels.

Now Peter is a man.

Therefore Peter is an angel.

(Correct, but false)

All birds have feet.

Now Peter is no bird.

Therefore Peter has feet.

(Incorrect, but true)

All birds have wings.

Now Peter is no bird.

Therefore Peter has wings.

(Incorrect and false)

4. Principles Concerning the Truth

Of course, the aim of all our studies is to arrive at conclusions which are both correct and true. The particular aim of logic is to aid us in arriving at *correct conclusions*. Of itself, it is not concerned with the truth of conclusions. Still, supposing that the process of reasoning is correct, the following principles may be laid down concerning the relation between the truth of premises and conclusions:

- a. If the antecedent is true, the conclusion must also be true.
- b. If the antecedent is false, the conclusion may be true or false.
- c. If the conclusion is true, the antecedent may be true or false.¹
- d. If the conclusion is false, the antecedent must be false.

2. RULES OF THE CATEGORICAL SYLLOGISM

a. Concerning the Terms (S, P, M)

important 1. No syllogism may contain more than three terms (ideas). The reason for this rule is evident from the definition of the categorical syllogism, which consists in this that two ideas are successively compared with the same third.

Therefore no syllogism may have 4 terms. Now there are also 4 terms when a word is used in two different *meanings*; e.g. all birds have wings; now Peter is a bird; therefore Peter has wings. This is wrong, because M is used in two different meanings.

2. No term may have a greater extension in the conclusion than it had in the premises. In other words, if S or P are particular in the premises, they cannot become univer-

¹This and the preceding rule may occasion surprise. How can truth flow from error? How can error lead to truth? St. Thomas solves the difficulty by a distinction: "Non contingit sciri ex falsis, etsi concludi possit ex eis" (In Post. Anal. I lectio 4). The false antecedent is not the *logical* reason for the true conclusion, nor does the syllogism *prove* the conclusion true. But if we lay down the premises and stick to them, the conclusion follows because it is implied in them. Cf. Tonquédec, *La Critique de la Connaissance* p. 410-413, 432-435.

sal in the conclusion. For, what is true of the particular is not necessarily true of the universal; e.g. if some men are white, it does not follow that all men are white.

3. The middle term may not occur in the conclusion. For the middle term is only a stepping-stone, a scaffolding to help in erecting the building. What we want to know, is the identity or diversity of S and P.

4. The middle term must at least once have universal (distributive) supposition. Otherwise we cannot be sure that we compare S and P with the *same* M.

This is by far the most important rule. Practically it means that the major premise must be *universal*.

b. *Concerning the Propositions (A, E, I, O)*

5. If both premises are affirmative, the conclusion, too, must be affirmative.

Proof: If both premises are affirmative, S and P are *identical* with M. We must conclude then that they are identical among themselves. But identity is expressed by affirmation ('is'). Therefore, if both premises are affirmative, the conclusion cannot be negative.

6. If either premise is negative, the conclusion, too, must be negative.

Proof: If either premise is negative, then either S or P *differs* from M. Therefore S and P must differ among themselves. Now difference is expressed by a negative proposition ('is not').

7. If either premise is particular, the conclusion, too, must be particular. For otherwise S would have greater extension in the conclusion than in the premises (against Rule 2).

8. Nothing follows from two negative or particular premises.

Proof: a. If both premises are *negative*, they assert that neither S nor P is identical with M. But that tells us nothing whatever about the relation which exists between S and P.— To illustrate: If I have only a 6-foot measure, and I find that it fits neither Peter nor Paul, I do not know whether Peter and Paul are equally tall or not.

b. If both premises are *particular*, either both are affirmative or both are negative or one is affirmative and the other negative. Now a) if both are affirmative, all terms will be particular (against Rule 4). b) If both are negative, there is no conclusion at all (first part of Rule 8). c) If one premise is affirmative, the other negative, the conclusion would have to be negative (Rule 6). That means that P would have to be a universal term in the conclusion, and hence also in the premises (Rule 2). But M must also be universal, at least once (Rule 4). Now under the conditions assumed, there is room for only one universal term. Therefore no syllogism is possible with two particular premises.

3. FIGURES

The figure of a syllogism is the proper arrangement of M. ('Proper' means so that the right conclusion necessarily follows from the premises.)

There are 3 *figures*:

M — P

S — M

—
S — P

P — M

S — M

—
S — P

M — P

M — S

—
S — P

In other words: In the first figure, M is the subject in the major and predicate in the minor; in the second figure, M is

use 1st figure whenever possible

predicate in both premises; in the third figure, M is subject in both premises.

Special Rules for the Figures

1. FOR THE FIRST FIGURE:

Know.

The minor must be affirmative, the major universal.

Proof: a. If the minor in the first figure were negative, the conclusion would also have to be negative (Rule 6). Then P would be universal in the conclusion, and therefore would also have to be universal in the major (Rule 2). But that could only be if the major, too, were negative. Therefore, if the minor in the first figure were negative, both premises would be negative (against Rule 8).

b. If the major in the first figure were particular, M would be particular in the major. Now M must be particular in the minor, by the first part of this rule. Therefore if the major in the first figure were particular, M would be twice particular (against Rule 4).

2. FOR THE SECOND FIGURE:

One premise must be negative, the major universal.

Proof: a. If neither premise were negative, M would be twice particular (against Rule 4).

b. Seeing that one premise must be negative, the conclusion, too, will be negative (Rule 6). Then P will be universal in the conclusion, and consequently must be universal in the major (Rule 2).

3. FOR THE THIRD FIGURE:

The minor must be affirmative, the conclusion particular.

Proof: a. The same as in the first figure.

b. If the minor is affirmative, S will be particular in the premises; therefore it cannot be universal in the conclusion (Rule 2).

4. Moods

The mood of a syllogism is the proper arrangement of the premises according to quantity and quality.

Therefore, as the figure of a syllogism refers to the place which M must occupy—so the moods refer to the propositions; not to their place (which is settled by the figures), but to their *quantity* and *quality*. In other words, the moods of the syllogism tell us whether the premises are to be universal or particular, affirmative or negative.

There are 14 legitimate moods. Scholastics designated them by words, the vowels of which indicate the nature of the premise (see p. 24):

FIRST FIGURE: Barbara, Celarent, Darii, Ferio.

SECOND FIGURE: Cesare, Camestres, Festino, Baroco.

THIRD FIGURE: Darapti, Felapton, Disamis, Datisi, Bocardo, Ferison.

The practical advantage of the figures and moods lies in this that they visibly express the 8 general rules of the syllogism and that they supply us with an easy means of examining any categorical syllogism as to its correctness.

The principal moods are, of course, those of the first figure. They should be practised thoroughly. The moods of the other figures are less evident; but their correctness may be shown by "reducing" them to the moods of the first figure. See Joyce p. 182-186; Coffey, Log. I p. 335-344.

EXAMPLES OF MOODS AND FIGURES

First Figure

BARBARA

All men are rational.
All negroes are men.
All negroes are rational.

CELARENT

No man is without a soul.
All Indians are men.
No Indian is without a soul.

DARII

All dogs bark.
Fido is a dog.
Fido barks.

FERIO

No man is a lion.
Some animals are men.
Some animals are not lions.

Second Figure

CESARE

No dog has wings.
All turkeys have wings.
No turkey is a dog.

CAMESTRES

All men are rational.
No monkey is rational.
No monkey is a man.

FESTINO

No plant feels.
Some fish feels.
Some fish is not a plant.

BAROCO

All fishes can swim.
Some birds cannot swim.
Some birds are not fishes.

Third Figure

DARAPTI

All men are rational.
All men are animals.
Some animals are rational.

FELAPTON

No man is a lion.
All men are animals.
Some animals are not lions.

DISAMIS

Some lawyers are crafty.
All lawyers are men.
Some men are crafty.

DATISI

All lawyers are men.
Some lawyers are crafty.
Some men are crafty.

BOCARDO

Some horses are not useful.
All horses are animals.
Some animals are not useful.

FERISON

No dog has wings.
Some dogs are collies.
Some collies have no wings.

II. THE HYPOTHETICAL SYLLOGISM

1. THE CONDITIONAL SYLLOGISM

1. A conditional syllogism is one whose major is a conditional proposition; e.g. if the patient sleeps, he will recover; now he sleeps; therefore he will recover. (Note that both the minor and the conclusion are categorical propositions.)

The conditional syllogism has *two moods*:

a. If the antecedent is granted in the minor, the consequent is to be granted in the conclusion (as in the above example).

b. If the consequent is denied in the minor, the antecedent is to be denied in the conclusion ; e.g. if it had rained, the road would be wet ; now the road is not wet ; therefore it did not rain.

The so-called "*fallacy of the consequent*" consists in mixing up the two moods, i.e. either a) first granting the consequent and then the antecedent, or b) first denying the antecedent and then the consequent.

2. Another kind of conditional syllogism consists of *three* conditional propositions ; e.g. if it rains, the ice on the pond will melt ; now if the ice melts, we cannot go skating ; therefore if it rains, we cannot go skating.

2. THE DISJUNCTIVE SYLLOGISM

A disjunctive syllogism is one whose major is a disjunctive proposition ; e.g. either Christ or Pilate erred ; now Christ did not err ; therefore Pilate erred. (Note again that both the minor and the conclusion are categorical propositions.)

The disjunctive syllogism has *two moods* :

a. Affirm one part of the disjunction in the minor and deny the other in the conclusion ; e.g. the earth is either at rest or in motion ; now the earth is in motion ; therefore it is not at rest.

b. Deny one part of the disjunction in the minor and affirm the other in the conclusion ; e.g. the earth is either at rest or in motion ; now the earth is not at rest ; therefore it is in motion.

The Dilemma

Like the disjunctive syllogism, the dilemma also starts with a disjunctive proposition ; its two parts are then called the 'horns' of the dilemma. But the dilemma proceeds differently from the disjunctive syllogism. Its *minor* shows that, no matter which horn the opponent chooses, he is wrong. Thus Our Lord, when rebuking the soldier who had struck him, argued thus : I have spoken either right or wrong ; if I have spoken right, why strikest thou me ? If I spoke wrong, prove it.

3. THE CONJUNCTIVE SYLLOGISM

A conjunctive syllogism is one whose major is a conjunctive proposition.

There is only *one mood*: Affirm one member in the minor and deny the other in the conclusion; e.g. nobody can read and sleep at the same time; now Peter sleeps; therefore he does not read.

III. OTHER FORMS OF INFERENCE

1. An *enthymeme* is a syllogism in which either one of the premises or the conclusion is omitted; e.g. God is holy; therefore He hates sin. Here the major is omitted: Whoever is holy, hates sin; or: if God is holy, He hates sin.

The enthymeme therefore differs from immediate inference; the former contains *three* terms fully stated, the latter only two.

2. A *polysyllogism* or *chain of reasoning* is a number of syllogisms so joined together that the conclusion of one syllogism always serves as a premise of the next.

3. The *sorites* is an abbreviated polysyllogism. It consists of more than three propositions so joined together that the predicate of one always becomes the subject of the next; in the conclusion then the subject of the first proposition is joined to the predicate of the last.

Example: The human soul is rational.

Now what is rational, is spiritual.

Now what is spiritual, is also immortal.

Therefore the human soul is immortal.

CHAPTER 3

Induction

I. Induction in Logic is the opposite of deduction. Whereas deduction proceeds from a universal to another universal or to a particular (as we saw in the syllogism), induction proceeds *from the particular to the universal*. Thus, having observed *some* pieces of iron sinking in water, we thence infer that *all* iron sinks in water.

Induction is called *complete* when all particular instances have been observed; if not all have been observed and yet a universal conclusion is drawn, the induction is called *incomplete*, as in the example given.

Complete induction is of little scientific value. First of all, it can *rarely* be had. Secondly, it does not lead *per se* to strictly universal propositions; for it tells us merely that a thing is so, not that it *must be so* (see Coffey, Log. II p. 27-32).

Hence we speak chiefly of *incomplete* induction.

The purpose of induction is twofold: a) to establish the *laws* which govern this universe (physical laws in a wide sense) and even man's free actions (moral laws); b) to find the *properties* of things, eventually the *natural classes* (species, genera etc.) into which the objects of nature are divided.

II. The process of induction comprises 4 steps:

1. Observation and Experiment

The first step is the gathering of particular facts. The first question must be: What has happened? What is there to explain? It were idle to speculate why the moon is made of

green cheese; it would have been idle for Theobald Smith to look for the cause of Texas fever if cattle had never been infected with this disease.

Now there are two methods of gathering facts: observation and experiment. We observe, as accurately as possible, an object or event in definite circumstances, paying, of course, special attention to that aspect in which we are interested. In experimentation we produce or vary the object or event to be studied, as in the chemical laboratory.¹

2. Hypothesis

The second step in induction is the formulation of a hypothesis, an attempt at an explanation of what has been observed. We suspect and *provisionally suppose* something that we hope will explain the facts. We guess that this or that definite law is the cause of the phenomena in question, that this or that class of beings is a natural species. Thus Walter Reed guessed that a certain kind of mosquito and nothing else was the cause of yellow fever; Pasteur guessed that the fermentation of the grape was due to germs, and not to mere chemical action and reaction, as scientists had thought before him.

Of course, "the actual conception of hypotheses is amenable to no logical rules. It is just here that the sagacity, genius and originality of the scientist and inventor will have free scope. Wrong hypotheses will be usually conceived before right ones. Kepler is said to have conceived and disproved nineteen successively, before arriving at the laws of planetary motion" (Coffey, Log. II p. 121-2).

Yet whereas Logic can give no rules for finding hypotheses except to keep looking for one, it does lay down rules for a *legitimate* hypothesis:

¹Cf. Joyce p. 310-9; Coffey, Log. II p. 162-172.

a. The hypothesis must be *necessary*. This implies two things: a) The facts to be explained must be real, not imaginary; it would be foolish to find a cause for what needs no cause. β) The hypothesis must be called for because there is no other explanation for the facts; *entia non sunt multiplicanda sine necessitate*.

b. The hypothesis must be *possible*. It must not contradict truths already established; for truth cannot contradict truth.

c. The hypothesis must be *sufficient*. That is, it must really explain the facts in question.

d. The hypothesis should be *verifiable*. That is, the cause assigned for the facts should be such that it could some day be proved to be the cause.

Logicians distinguish three kinds of hypotheses:

a. **Descriptive hypothesis** is an attempt at an exact quantitative formula of the facts observed. Its aim is to describe the facts with mathematical precision. The result is called an "empirical law"; as e.g. in astronomy Kepler's laws of planetary motion, in optics the laws of refraction and reflection, in electricity Ohm's law, in mechanics the laws of falling bodies.

b. Hypothesis in the strict sense is **explanatory**. Whereas the descriptive law tells us how exactly things happen, the explanatory hypothesis tells us why they happen, why they must happen.

c. A third kind is the **working hypothesis**. It is a guess at either a mathematical formula or a causal explanation, which is recognized from the beginning as having little or no probability. Such a working hypothesis was the "electric fluid" assumed by Benjamin Franklin (now irreverently called "juice"); he supposed that electricity was some sort of fluid, merely to have a starting-point for his research. Yet though improbable or wrong, such hypotheses have their

utility. For their proximate purpose is to collect, arrange, describe and discuss in intelligible language, the multifarious phenomena, which would otherwise be a chaotic jumble. "The conception of any such hypothesis, and its application to facts, invariably stimulates scientific inquiry and leads to valuable results, and this even though the hypothesis itself may turn out afterwards to have been partially or wholly erroneous." However, "it is not the function of logic, but of the respective sciences in which such hypotheses are employed, to discuss the latter on their merits" (Coffey, Log. I p. 131).

3. Verification

The hypothesis is merely a question put to nature; verification elicits the answer. Verifying a hypothesis means *proving* that it is the true explanation. It also includes *generalization*; for we suppose that the hypothesis was of such a nature as to discover a general law or strict property.

Illustration: Suppose that after several experiments, in which we have observed iron to sink in water, we surmise that this is a *law*, and that iron by its very nature *must* sink. How can we *test* this hypothesis? We must vary both the external circumstances of the experiments (time, place) and the internal accidents of iron and water (using round, square, oblong pieces of iron; using warm, cold, quiet, flowing water etc.) If after and in spite of all these variations, iron continues to sink in water, we are entitled to ascribe the phenomenon to an essential relation between iron and water. (Compare how the laws of motion or of falling bodies are proved to be laws in physics, or read the account of how the mosquito was proved to be the carrier of the yellow fever germ in de Kruif, Microbe Hunters.)

Three remarks:

- a. A hypothesis is not really verified when it can be shown

to explain the facts; it must be shown to be the *only* explanation.

b. In a wider sense, a hypothesis is sometimes said to be verified when it explains the facts *better* than any other hypothesis suggested so far, or when it lends itself to the explanation of cognate groups of facts for which it had not originally been proposed. Sciences are full of such hypotheses.

c. Epistemology shows that the process of verification leads, under certain conditions, to true *certitude* as regards physical laws and natural classes.

4. Application

After the law or property has been established, we apply it to all particular facts that come under it. Though this process is really deductive, yet it pertains to "scientia," which is knowledge of things through their causes. This is scientific *explanation*.

Statistics and Averages

1. Statistics is the science which deals with the tabulation, computation and regular recurrence of individual facts of the same kind.

a. "We are said to compile statistics when we count or compute the number of instances of the occurrence of a phenomenon—and if possible, also, the measure or degree in which it occurs in each instance—within any selected limits of time and space" (Coffey, Log. II p. 192). Thus we may collect and *tabulate* the annual production of cotton or wheat in the U. S., the number of annual births or marriages or deaths, the number of strikes or suicides within a given locality, the number of negroes in each state or city etc. The result may be given either in *absolute* or *relative* numbers (e.g. so many negroes in Chicago or so many per 1000 inhabi-

tants); sometimes the result is represented *graphically*, especially for the sake of comparison.

b. Statistics are combined into *averages* by computing the arithmetical or geometrical mean. This computation is easy where complete statistics are at hand. Incomplete statistics may be supplemented by inference from "samples" or by mere estimation; but both methods are to be employed with great caution.

Note that the average differs from a *universal*. The universal is true of every single individual; the average is applicable only to a mass. If 51 years be the average age at which Baltimoreans die, we know nothing how old John Smith of Baltimore was when he died.

c. A further purpose of statistics is to find, if possible, *regularities*. This is done by comparing the different times or places or circumstances in which the statistics had been taken. Thus one may find that the number of deaths is almost constant from year to year within a given territory. Of course, the wider the range covered by the statistics, the greater the chance of eliminating accidental variations.

2. Statistics, as a special method, was formerly restricted to the so-called *social sciences*. Statisticians computed the population of a country, its production and distribution of goods, its educational and recreational facilities, its health and crimes etc. Nowadays its scope has been extended to *natural sciences*: anthropology, meteorology, physics, psychology etc.

3. The *explanation* of statistics as well as the drawing of *conclusions* from them (by induction or deduction) should be left to those who are experts in the respective sciences.¹

¹Cf. Cath. Enc., s. v. Statistics; Coffey, Log. II p. 282-293; Lahr I p. 653; Sortais I p. 383-4, 755.

CHAPTER 4

Cumulative Argument

1. Sometimes we should like to know *individual facts*, which we had not observed ourselves, perhaps could not observe: Did Morse invent the telegraph? Did the World War begin in 1914? Is John Brown's fever due to pneumonia? It is clear that induction cannot help us to answer these questions; for the conclusion of induction is a universal proposition. Nor will deduction do. The conclusion of a syllogism may indeed be a singular proposition (Darii, Ferio), but its predicate, being derived from a universal proposition, will be something common to all (e.g. therefore Peter is rational). But in our questions, both S and P are individual, unique in the sense that the facts happened once and cannot possibly happen again.

2. A cumulative argument is one based on reasons which *point to the same fact* as their only common explanation.

Examples:

A teacher is struck by a certain similarity between the themes of John Smith and Paul Jones: the same arrangement, the same happy phrases, even the same wrong spellings. Perhaps no single item, taken by itself, proves that one has copied from the other; but all together leave no doubt in the teacher's mind. By another set of probabilities the teacher may even become sure that John Smith has copied from Paul Jones, not vice versa.

Or suppose that 5 contemporaneous historians testify that Nero committed suicide. Suppose moreover that they are independent of one another and that all sinister motives

(greed, envy, hatred) can be excluded from their testimony. What other explanation can there be for their combined testimony except the fact that Nero really did commit suicide?

3. The steps involved in this argument are the first three discussed under induction. First of all, the facts must be gathered diligently and without bias. Then a hypothesis is formulated, that is, some other fact is assumed provisionally, which would account for the facts unearthed. Lastly, the hypothesis must be verified, to see if it and it alone explains the known facts.

4. This method of reasoning is mainly used in history. It is also resorted to in daily life, where particular facts are to be ascertained: in court procedure, in medical diagnosis, in the recognition of an old friend etc.¹

5. The argument, though often called "convergence of probabilities," has nothing to do with the mathematical calculus of probabilities. The two processes are totally different. Besides, the former pertains to the real order, the latter to the order of mathematical abstractions.

¹The best explanation of this method of reasoning is found in some articles in *Revue néo-scolastique* (1919-1920) and in *L'Etude comparée des Religions* (ed. 3, II p. 112-6, 509-554). Both are by H. Pinard de la Boullaye, S.J. But the first to draw vigorous attention to this line of reasoning was Card. Newman in his *Grammar of Assent* ch. 8, 9. See also d'Arcy, *Nature of Belief*; Coffey, *Log.* II p. 262-5; Lahr I p. 691-2.

Part 4

METHOD

a. It may be well at the outset to contrast doctrine and method. Suppose a scientist takes it into his head to examine all objects through a yellow glass: that is a method of research. He now announces to an expectant world that all objects are yellow: that is a doctrine. Method then is a way to arrive at a doctrine.

Method in general may be defined as the *order* to be observed in a series of actions so that a definite goal (purpose) be attained.

b. Wherever a definite goal is to be attained by a series of actions, method is of supreme importance. Method is necessary to build a bungalow, to turn out a Stetson shoe, to bake biscuits. Without some method, such things could not be accomplished.

Methods are neither true nor false; they are either good or bad. A *good* method is one by which the desired goal is attained securely and easily; if the method be such that the desired goal cannot be attained at all or only with great difficulty, it is called *bad*. It would be a bad method to look for the human soul with a microscope.

c. Logic is essentially a treatise on *method*. The goal however, is not the making of bungalows or shoes or biscuits, but *truth of thought*, that is, the truth of the conclusions of our reasoning processes. Nor are the actions to be ordered correctly manipulations of the hand, but the *operations of the mind* involved in reasoning.

d. The simplest form of logical method is inference and

the syllogism. The rules laid down for them assure us that our reasoning processes will lead us to true conclusions.

However, the operations of the mind involved even in the ordinary syllogism are relatively few, and the goal to be attained is the truth of one proposition. Method rather refers to processes involving *many* steps, such as induction and cumulative evidence; hence these are often spoken of as the inductive method and the historical method.

e. But the ultimate goal of all research and reasoning is '*scientia*' or *systematic knowledge*. We shall therefore discuss first the notion of system, called '*scientia*' by the Scholastics, and then the three indispensable ways of arriving at it, called '*modi sciendi*'.

CHAPTER 1

The System

1. GENERAL NOTION

The ultimate goal of all study is the system, i.e. the *orderly arrangement of our concepts*. For, order being the supreme law of reality, it must also be the supreme goal of our intellectual endeavors; as a matter of fact, we are not satisfied unless our knowledge of things is orderly and systematic. It would seem that man's aptitude and desire for this kind of knowledge is the kernel of truth contained in the so-called "coherence theory of truth" (see p. 246).

Now systematic knowledge consists in such an arrangement of our concepts that their identity and diversity is *apparent at a glance*.

Take three concepts with which we are all familiar: animal, man, brute. Man is not a brute, nor are brutes men. But both men and brutes are animals. 'Animal' may be predicated of both men and brutes. The order existing between three concepts like these, is generally indicated by arranging them thus:

ANIMAL
Man — Brute

This diagram shows us what is meant by coordination, subordination, superordination of concepts. Coordinated concepts cannot be predicated of one another; but a subordinated concept may be made the S of a proposition, of which the superordinated concept is the P.

From this diagram we also understand why subordinated

concepts are called the *inferiors* of the superordinated or higher concept.¹

2. DIRECT AND REFLEX UNIVERSAL

Seeing that the higher concept can be predicated of its inferiors, there is a relation of identity between them; for logical predication expresses identity. And seeing that the higher concept can be predicated of many inferiors, there evidently exists between them the relation proper to the *universal*, viz. one in many.

This leads us to a distinction of universal concepts which we postponed in an earlier chapter (see p. 14).

The direct universal is something common to many, but *not* conceived as such. The reflex universal is something common to many and conceived *as such*. Thus I may merely know what 'man' is (viz. a rational animal) without realizing that it can be predicated of many; in that case, my concept of 'man' is called a direct universal. But if I also conceive 'man' *as capable of being predicated* of Peter, Paul, John etc., my concept is a reflex universal.

3. PREDICABLES

There are various kinds of relations of identity existing between one and many, and these are called *predicables*. The Scholastics, taking the *essence* of the inferiors as the principle of their division, distinguish 5 *predicables*:

1. **Species** is such a relation between concepts that the

¹Inferior means of course lower. But note that the word as used here has nothing to do with 'lower' or 'simpler' or 'less perfect' in the order of reality. Scientists speak of lower and higher animals, of simple organisms (like the amoeba) and of complicated structures (like man's); evolution is claimed to be an advance from the less perfect to the more perfect etc. The term 'inferior' as used in logic has an essentially different meaning.

higher concept expresses the *complete essence* of the inferiors. Such a relation exists between 'man' or 'rational animal' and all individual men (Peter, Paul, John etc.) ; they all agree in possessing manhood, and outside of manhood nothing is essential to them.

2. **Genus** is such a relation between concepts that the higher expresses the *determinable part* of the essence of the inferiors.

3. **Difference** is such a relation between concepts that the higher expresses the *determining part* of the essence of the inferiors.

To understand these last two definitions, remember that we define a thing by means of *two* concepts : one in which many things are alike, the other by which the thing defined differs from all pertaining to the same group. Thus when I say : Man is a rational animal, 'animal' expresses man's essence, but not completely ; it must be further determined by 'rational,' by which man differs from all other animals. Hence 'animal' is said to express the determinable part of man's essence, 'rational' the determining or differentiating part.

The difference is said to *contract* the genus ; for by adding a new concept, it lessens the extension of the genus.

4. **Property** is such a relation of concepts that the higher expresses something *necessarily flowing* from the essence of the inferiors, though not pertaining to the essence itself. Thus the faculty of rational speech is a property of man ; though not a part of man's essence, it yet flows necessarily from that essence.

Properties are called *generic* or *specific*, according as they flow from the generic or specific essence.

5. The (logical) accident is such a relation between concepts that the higher may be *present or absent* in the inferiors

without affecting their essence. Thus whether a man be white or black or brown, "he is a man for a' that."

There are also *other* definitions of the *predicables* current. A *predicable* is said to be "P as predicated of many S." This definition shows that the *predicable* coincides with the *reflex universal*.—Modern scientists especially define a *predicable* (more concretely) as "the *collection* of all those things of each of which one and the same predicate may be used." In this sense, all men together constitute a *species*, all animals a *genus*.

4. THE PREDICAMENTS

If extension and comprehension vary inversely according to the rule given on page 13 we must at last come to concepts which are both widest in extension and least in comprehension. Which are they? Aristotle enumerated 10 of them: substance, quantity and quality, relation, action and passion, where and when, posture and environment. They are called the *10 categories* or *predicaments*.

Still wider, however, than any of these and yet covering them all is the concept of *being* (thing, something) with its attributes of unity, truth and goodness. These concepts are called *transcendental*, because, being implicitly contained in the concepts of all 10 categories, they transcend them all.

The discussion of the peculiar nature of all these concepts and of the principles flowing from them forms the subject-matter of that part of philosophy which is called "general metaphysics."

5. PREDICAMENTAL TREES

1. By analyzing a *genus*, we may again distinguish in it a *determinable* and a *determining part*. We thus get what is called a *higher genus* and a *generic difference*. The *generic difference* contracts a *higher genus* to a *lower genus*.—By contrast, the difference which contracts a *genus* to a *species*, is called *specific difference*.

omit out.

The *highest genus* is one above which there is no other. The highest genera of all created things, that is the highest concepts which may be predicated univocally of creatures, are the *10 predicaments*.—The *lowest (proximate) genus* is one below which there is no other.—An *intermediate genus* is one above and below which there are other genera.

2. The Porphyrian Tree

A natural series of genera and species, beginning with the highest genus and descending to the lowest species, is called a *predicamental tree*. Such a series has been correctly worked out by Porphyry concerning *man*, and is therefore called 'Porphyrian Tree.' It is arranged as follows:

SUBSTANCE

Material	—	Immaterial
Living	—	Non-living
Sensitive	—	Non-sensitive
Rational	—	Non-rational

To forestall possible difficulties, observe: These are *mere* definitions or explanations of the terms as used by the Scholastics. What corresponds to them in reality, will be told in epistemology.—Likewise, the examples here given, though certainly approved by common sense, are only meant to *illustrate* the definitions. That these illustrations are philosophically correct, will be proved in other parts of philosophy.

CHAPTER 2

Modes of Acquiring Systematic Knowledge

I. DIVISION

1. Notion

Generally speaking, to divide is to separate the various parts of a thing. But in logic, *division* is defined as a speech distinctly enumerating the parts of a (logical) whole.—*Sub-division* is a speech distinctly enumerating the parts of a part.

To explain:

a. A *whole* is something which is composed of parts, and can therefore be broken up. *Parts* are those things of which a whole is composed, and into which it can therefore be broken up.

A *real* whole is one which cannot be predicated of the single parts; e.g. a house, which cannot be predicated of the single rooms.—A *logical* whole is one which can be predicated of the single parts; e.g. animal, which can be predicated of Peter, a horse etc. In other words, what we ordinarily mean by a whole is the real whole; the logical whole is a *universal* concept, and its parts are the inferiors of which it can be predicated.

In this chapter we only speak of the *logical* whole and its parts.

The parts of a logical whole are also called *members* of the division. They are also called *subjective* parts, because they can be subjects in propositions of which the logical whole is the predicate (e.g. Peter is an animal; the horse is an animal).

b. There are various ways of *expressing* division; e.g. an

animal is either rational or irrational; some animals are rational, others irrational; animals are divided into rational and irrational etc.

c. By 'speech' is not meant a long Ciceronian oration, but merely a "connected series of words." That is, on the one hand, the division must consist of *more than one word*; for it is supposed to enumerate the various parts of a whole. On the other hand, being the predicate of a single proposition, it must be *brief*.

2. Kinds of Division

Division is said to be *essential* or *accidental*, according as there is an *essential* or only an *accidental* difference between the members of the division. Hence:

a. *Essential divisions* are the following: a) when a *genus* is divided into its *species*; b) when a *higher genus* is divided into its *lower genera*; c) when an *analogous term* is divided into its *analogates*.

b. *Accidental divisions* are the following: a) when a *substance* is divided according to its *accidents* (e.g. horses are either white or black or brown etc.); b) when an *accident* is divided according to its *subjects* (e.g. motion is either *molar* or *molecular* or *atomic* etc.); c) when an *accident* is divided according to its *accidents* (e.g. motion is either *slow* or *fast*, *up* or *down*).

3. Laws of Division

a. The *division* must be *adequate*, i.e. such that all the members when taken together, equal the *whole*. For the *whole* is equal to its *parts* when taken together. Hence the following is a wrong (inadequate) division: Men are either Americans or Chinamen.

It is also evident that no single member of a division can equal or exceed the whole.

b. The single members of a division must *exclude* one another; they must not overlap. Hence the following is a wrong division: Men are either white or black or mechanical engineers.

c. The division must keep to the *same principle* or foundation.

The principle of a division is the aspect according to which the division is made; it is a mark which is found in all the members of a whole, yet differs in each. Thus we may divide man according to race or language or color etc.

d. The division must be *orderly*.

This rule refers especially to cases where there are subdivisions. It means that each division or subdivision should comprise those parts and those only which *immediately* constitute the whole or the part subdivided.

II. DEFINITION

Generally speaking, to define is to explain what we mean by a term. There are two principal kinds of definition: nominal and real.

1. NOMINAL DEFINITION

1. Notion

A nominal definition merely explains the word as such, not the thing signified by the word. This may be done in various ways: a) by distinguishing between the various meanings of an ambiguous term; b) by giving merely synonyms or words better known; e.g. campus is a field; c) by giving the etymology of a word; e.g. philosophy is love of wisdom; d) by enumerating some or all of the things signified; e.g. plants are trees, shrubs, flowers etc.; e) by merely appealing to the

usual meaning; e.g. space is that which people mean when they speak of space.

2. Use of Nominal Definitions

Nominal definitions are used chiefly at the *beginning* of a disputation, to indicate what is the subject (S) under dispute. Thus when setting out to prove that plants have no sense life, we may define by merely enumerating various objects called 'plants' by everybody.

3. Rules

- a. If a word has only one definite meaning, this is to be adhered to.
- b. If the meaning of a term be itself in dispute, its nominal definition must be such that it can consistently be admitted by both sides of the dispute.

The first rule applies particularly to words in every-day use. If their meanings were arbitrarily changed, human speech would become impossible.—Father Joyce (p. 401) lays down three other practical rules for philosophers: α) to employ the most commonly accepted terms in their most commonly accepted meanings; β) where any doubt as to the meaning of a term can arise, to define carefully; γ) never to employ a term to which one cannot assign a precise and clearly-defined meaning.

2. REAL DEFINITION

Real definition is a speech explaining not merely the term, but the *thing* signified by it. Real definition is either essential or descriptive.

1. Essential Definition

An essential definition is a speech explaining the essential parts of a thing. But according as these parts are either really distinct from one another or only in our mind, essential definitions are either physical or metaphysical.

- a. The *metaphysical* definition consists of the *proximate*

genus and the *specific difference*; e.g. man is a rational animal.

This is the most perfect kind of definition. We arrive at it by three steps. First we compare the thing to be defined with all other things; then we indicate the class to which it belongs; lastly we point out that which differentiates it from all the other things belonging to the same class (see p. 59).

All other definitions are built up on the analogy of this.

b. The *physical* definition indicates those parts of a thing which constitute its essence, but are really distinct from one another. Thus man may be defined as "a substance composed of a body and a spiritual soul."

2. Descriptive Definition

On the analogy of the metaphysical definition, the descriptive definition indicates something which the thing to be defined has in *common* with many others, and a *distinctive* mark, which differentiates it from everything else in that class. According to the nature of this distinctive mark, logicians distinguish principally *4 kinds* of descriptive definition:

a. The *proper* definition explains the thing to be defined by one or more of its properties; e.g. man is an animal with the faculty of rational speech.

Such definitions are called *popular* or *scientific* or *philosophical*, according as the properties indicated are sufficiently distinctive for the popular mind, or serve scientific purposes, or have been proved to be properties in the strict sense.

b. The *causal* definition explains a thing by its proper extrinsic cause, especially by its purpose; e.g. a clock is a contrivance to indicate time. In this way we define man-made objects; e.g. table, book, telephone.

c. The *genetic* definition explains how a thing originates.

d. The *accidental* definition explains a thing by enumerat-

ing so many (logical) accidents that they can only fit this one thing. We thus define especially *individuals*.

3. Laws of (Real) Definition

a. Definitions must be *brief*, i.e. contain nothing superfluous.

b. Definitions must be *simply convertible* (see p. 34); for they are supposed to fit only the things defined.

c. Definitions must be *clear*, so that one can readily see what they mean, what things are included and excluded, what they attribute to the things defined. Consequently the following, though common today, are wrong definitions: a) those which contain ambiguous or obsolete or metaphorical words; b) those which define a thing by itself (e.g. logic is the science of logical operations); c) those which are wholly negative (e.g. man is not an angel).

d. Definitions must be *clearer than the things defined*. Else they lose their purpose, which is to explain.

Philosophically speaking, a thing becomes clearer by being reduced to higher genera. Now we cannot go on reducing a thing to ever higher and higher genera; there must be a stop somewhere. There must then be some *highest* genera, which cannot properly be defined.

Hence *not everything can be defined*.

III. ARGUMENTATION

Argument is merely another word for reasoning. But argumentation rather refers to the *method* of arguing or reasoning, especially where many steps are involved.

Now reasoning, whether involving few steps or many, is a mental process in which we pass from what is known to what is unknown. Hence we may distinguish three things in reasoning: a) that which is known; β) that which is unknown;

γ) the mental journey from the first to the second. A few words on each.

1. Principles of Reasoning

All reasoning supposes certain *principles*, i.e. things which must be known and admitted beforehand; without them reasoning would simply be impossible. They are called principles, because the process of reasoning begins with them and the conclusion flows from them.

Let us observe at once that it would be absurd to demand proof for everything. Just as in defining we must eventually come to notions which cannot be strictly defined, so in argumentation we must come to *ultimate* (or *first*) principles which cannot be proved by another process of reasoning.

2. However, we must distinguish between material and formal principles of argumentation.

The *material* principles are the terms and the propositions (premises); the *formal* principles are those truths which insure the correctness of the process of reasoning. Thus the formal principle underlying the categorical syllogism is the 'principle of identity'; the formal principle underlying the conditional syllogism, as well as induction and the cumulative argument, is the 'principle of sufficient reason.'

3. But what must we *know* of these principles beforehand? What must be admitted by both parties to a dispute, so that a conclusion may be reached?

a. With regard to the *terms*: Of the subject (S) we must know at least the nominal definition. Besides, we must know that it exists (unless, of course, precisely its existence be in question).—Of the predicate (P) and the middle term (M) the real definition must be known.

b. The *premises* must be admitted as certain or at least as probable.

c. The *formal* principles must be known at least implicitly

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and as certain; for without them the argumentation would have no force whatever.

2. The Question

The *unknown* in reasoning is called the question, or thesis, or conclusion—according to the viewpoint. “Does God exist,” asks S. Thomas in his *Summa theologica*. He supposes it to be unknown. Modern textbooks carry the thesis “God exists”; it is to be proved and held thereafter, for it may then serve as a principle. “God exists” will also be the conclusion of the proofs or arguments.

In induction and in the cumulative argument, the unknown rather corresponds to the *hypothesis*.

3. Kinds of Argumentation

The transition from the known to the unknown is a mental process, connecting antecedent and consequent by a logical bond. This bond is contained in the form of the argument. The form must, of course, be correct: an argument that lacks correct form, is really no argument at all, though it may have the appearance of one.

However, looking more to the *matter*, logicians distinguish various kinds of argumentation:

1. Demonstration and Probable Argument

Demonstration is a correct argument from certain (and evident) premises. A probable argument is a correct argument from probable premises.

The difference also appears in the *conclusion*. For the conclusion of a demonstration is certain (and evident), whereas a probable argument can only lead to a probable conclusion.

2. Direct and Indirect Argumentation

The principle of this division is the *contradictory* of the conclusion to be proved.

Indirect argumentation proves a proposition by showing that the contradictory of it is false or absurd. It is generally hypothetical in form, and rests on the self-evident principle that if either of two contradictory propositions is false, the other is true (see p. 32).—Direct argumentation proves a proposition without using this roundabout method.¹

Akin to the indirect proof are a) the *negative* argument, which merely shows that an assertion has not been or cannot be proved; b) the '*argumentum ad hominem*,' which proceeds from the admissions of the opponent, whether these be true or false; c) the *retort*, which shows to the opponent that he contradicts himself, i.e. that either his premises or his conclusion lead to something which he cannot consistently admit.

As is evident, none of these forms of argumentation establishes a positive thesis.

3. *A priori* and *a posteriori* Argumentation

The principle of this division is the relation of *real* priority between premises and conclusion.

The premises are always logically prior to the conclusion; for the premises are the logical reason why we assent to the conclusion. But the things signified by the premises may *in reality* either precede or follow the thing expressed in the conclusion. If they precede, the reasoning is called *a priori*; if they follow, the argument is *a posteriori*.

To illustrate. The cause is really prior to the effect, the effect is really posterior to the cause. But we may reason

¹All true propositions can be proved indirectly; in fact, indirect proof is often the only one possible or feasible, especially where we deal with the first principles of cognition (as in epistemology). Still, indirect proof has one drawback. It only shows that a proposition cannot be denied in reason, not why it must be admitted as true. Hence it is called an *imperfect* argument.

either from cause to effect (a priori) or from effect to cause (a posteriori). Thus if you argue that John will die because he has double pneumonia, you argue a priori; for double pneumonia is the real cause of death. But if you argue that John must have had double pneumonia, because he died, you argue a posteriori.

The *regressive argument* (*legitimate circle*) aptly joins both these kinds of reasoning. Thus from the *obvious* order in the world, we conclude (a posteriori) to the wisdom of the Creator; then, retracing our steps, we may, from the infinite wisdom of the Creator, conclude (a priori) that there must be order even in those things which *seem* to us without order.

4. Deduction, Induction, Cumulative Argument

The principle of this division is the *quantity* of the terms compared.

In *deduction* we pass from universal to singular (or at least to less universal). Thus: All bodies have weight; now the air is a body; therefore the air has weight.

In *induction* we pass from singular to universal. Thus: metals, woods, stones etc. have weight; therefore all bodies have weight.

In the *cumulative argument* we pass from singular to singular. Thus: Peter, Paul, John assert that Rome exists; therefore Rome exists.

Deductive reasoning may be a priori or a posteriori; induction and the cumulative argument are necessarily a posteriori.

APPENDIX 1

Fallacies

A fallacy or sophism is an argument which seems to be correct, but is not. A fallacy, therefore has the *appearance* of a good syllogism; an argument in which the form is evidently awry, is not called a fallacy; it would deceive nobody.

Following Aristotle, we divide fallacies into those of diction and those of thought. In the former, the deception is due to the identity of the *words* used, in the latter to the fact that the *things* spoken of are similar to other things.

1. FALLACIES OF DICTION

1. *Equivocation* is the use of the same word in different meanings.

Thus one might argue: All birds have wings; now John is a bird; therefore John has wings. The *same word* 'bird' is used as middle term in the major and in the minor; hence the form of the argument is *apparently* correct. But the meaning of 'bird' is by no means the same in both premises.

To lay bare the fallacy, *distinguish* the major and *contradistinguish* the minor. Thus: Birds in the proper sense have wings, yes; birds in a metaphorical sense have wings, no (or transmit); John is a bird in the proper sense of the word, no; Peter is a bird in a metaphorical sense, yes (or transmit).

Equivocation is an exceedingly common form of fallacy. The only way to avoid it in our own reasonings and to detect it in the reasonings of others, is a careful study of the various meanings of the terms we use or hear used.

2. *Ambiguity* is the use of a phrase or a whole sentence in different meanings; e.g. "The Duke yet lives that Henry shall depose" (Shakespeare, Henry VI).

3. *Illicit transition* from one supposition of a term to another.

The most common form of this fallacy is the transition from the collective to the distributive supposition or vice versa. Thus: the Apostles preached everywhere (as St. Mark tells us); now St. Philip was an Apostle; therefore St. Philip preached everywhere.

The fallacy is exposed by pointing out the difference of supposition.

2. FALLACIES OF THOUGHT¹

1. The *fallacy of the accident* consists in tacitly supposing as always true what is true only under certain circumstances. In other words, this fallacy tacitly confuses what is accidental with what is essential, ascribes to all what is true of only one or a few ("ab uno disce omnes"), infers at once that a thing must be so because it is so.

Thus from the evil influences to which man is accidentally exposed in society, Rousseau infers that social life is essentially evil, and that the life of a savage is the normal condition of man.

Akin to this is another fallacy in which a *mere antecedent* is tacitly supposed to be a true cause ("post hoc, ergo propter hoc").

Thus the pagans blamed the introduction of Christianity for the downfall of the Roman empire.—By defining cause as a mere antecedent, Hume really would make this fallacy the key-stone of science and philosophy.—Evolutionists, too, by tacitly assuming that later forms of life are invariably the descendants of earlier forms, really suppose to be a true cause what is perhaps a mere antecedent (e.g. man's ancestors).

2. *Arguing beside the point* consists in proving what is not in question at all. This fallacy may be committed in various ways:

¹ An excellent exposition of these and many others will be found in Toohey, Elementary Handbook of Logic.

a. Sometimes the disputant *misses the point at issue* altogether, or misconstrues the position of the opponent; as when Protestants condemn Catholics for adoring Saints. This is called "*ignoratio elenchi*."

b. Sometimes the disputant *proves too much*, and therefore proves nothing ("*qui nimium probat, nihil probat*").

Thus if one were to prove the spirituality of the human intellect by claiming that the intellect has no need at all of the senses, he would prove too much; for that would make the human intellect angelic.

c. Sometimes the disputant *proves too little*, and again proves nothing.

Such would be the case, for instance, if one were to prove the freedom of the will by pointing to man's immunity from external forces.

3. *Begging the question* consists in implicitly supposing as proved what is yet to be proved. Its most common form is the so-called *vicious circle*, in which A is proved by B, and then B by A. Another form is the *coloring of facts*, viz. in accordance with a theory which these same facts are supposed to prove.

Thus "psychoanalytical expositions are so formulated that the theories completely colour what should be the plain description of a situation, so that what is offered us as fact and proof of a theory actually already assumes and contains the whole theory" (Allers p. 340).

The Thesis

1. It is customary today among Scholastics to present philosophy in a series of theses. This is by no means the only nor perhaps the best form.¹ Still it has its advantages. And as we shall follow common usage, a few remarks to explain its makeup will not be out of place.

Generally speaking, the thesis consists of 6 parts:

a. The *statement* of the thesis. This ought to be worded with the utmost care; there should be no ambiguity, no superfluity, no obscurity. Without exaggeration we may say that the laws laid down for real definitions (see p. 67) find their application here.

b. The *state of the question* (*status quaestionis*). This part comprises first of all an explanation of the *terms* used in the statement of the thesis, secondly a brief description of the meaning of the thesis as a *whole* (including distinction of parts, if there are any), thirdly an outline of the various *opinions* formerly or now held on the subject of the thesis.

It is also becoming more and more customary to state at the outset whether the thesis is to be held as certain or as only probable. Not all theses found in scholastic textbooks are

¹Saint Thomas follows a slightly different procedure. He begins with a question ("Utrum Deus sit" I qu. 2 a. 3). Next, roughly corresponding to our 'adversaries,' are the objections against the thesis he is going to uphold ("videtur quod Deus non sit"). Then, after briefly indicating what we might call the note of the thesis ("sed contra est quod"), he gives the proof of the thesis ("respondeo dicendum quod"). Finally, he answers the objections mentioned in the first place ("ad primum ergo dicendum quod").

certain. Hence assigning a '*note*' to each thesis helps toward clearness of thought.

c. The *proof*, which consists of one or more arguments.

In textbooks written for beginners, it seems best to put all arguments in strictly *syllogistic* form. Such a practice may look unnatural and stilted, but it is an invaluable aid toward clear thinking.

Strictly speaking, one argument suffices. Usually, however, *several* are given. The thesis may be connected with many other truths already known, each of which may shed light on it. Besides, not all arguments are of equal force, nor has every argument the same appeal for all.

d. *Corollaries* are propositions which flow (immediately or mediately) from the thesis. One who admits the thesis, cannot logically deny them.

e. *Objections* or *difficulties* are the arguments by which the opponents of the thesis try to uphold their side. It is the student's duty not only to be acquainted with them, but also to be able to solve them.¹

f. *Scholia* are brief discussions of points more or less connected with the thesis.

2. If serious and disinterested inquiry after the truth has rightly been called the *soul* of the scholastic method (Coffey, Log. II p. 20), the thesis is its *body* or external form. Scholastics did not find it in Aristotle's books, but worked it out themselves, primarily for the study of theology. Its advantages, recognized also by contemporary non-scholastic thinkers,² are self-evident:

a. If the terms of the thesis have been carefully defined

¹The various ways of answering objections will be discussed under 'Scholastic Disputation' (see p. 78 to 85).

²See Zybura, Present-day Thinkers etc. p. 101; Coffey, Log. II p. 19-21; D. S. Robinson, Principles of Reasoning p. 372-8.

and its meaning clearly stated, matters *irrelevant* to the issue will not easily creep into the discussion.

b. On the other hand, there is no side-stepping the issue. *Opponents*, actual or possible, must be known and answered to everybody's satisfaction. Within reason, of course, since "none so blind as those who will not see."

c. The syllogistic form of the proof makes for straight thinking. The *principles* are enunciated clearly and boldly; they must therefore be such that they can be held against any who would challenge them. The *form* must, of course, be perfect—not only as far as ideas go, but preferably also as to the words. Masters of both philosophy and style may combine solid argumentation with brilliant diction; the beginner had better abstain from pyrotechnics.

d. There is no better *training* of the mature mind. We learn many new truths, see old ones moved into new perspectives, discover the logical ties that bind them into a well-rounded system. But above all, the focus of attention (to use the language of modern psychology) is widened as much as is humanly possible; for the mind is obliged to *concentrate* on all points bearing on one theme—a difficult, but wholesome mental gymnastics (see Gruender p. 203-5, 229-230).

APPENDIX 3

The Scholastic Disputation

1. GENERAL REMARKS

1. The general *purpose* of scholastic disputations or circles (as they are commonly called) is twofold: a) to repeat a thesis already explained and to clarify its import in the minds of the class, b) to test and sharpen the minds of the disputants.

There are only two disputants: the *defender*, whose duty is to explain and prove the thesis assigned, and to answer all objections brought against it; the *objector*, who marshals various arguments against the same thesis. Generally also a time-keeper is appointed; he does not enter the fray, but merely calls out the time allotted to each of the disputants.

A scholastic disputation is not a debate. The thesis assigned is not a debatable matter, but is to be held by the defender against all comers; no vote is taken at the end. Nor is the scholastic disputation an oratorical contest. Long speeches and Ciceronian periods are wholly out of place. In fact, one of the rules is that the disputation must proceed "*in form*," that is, by way of strict syllogisms.

2. General Rules

a. As was just remarked, scholastic disputations proceed by way of strict syllogisms. At times, it may be necessary to put a question or to ask for an explanation. But as a rule, syllogism follows syllogism; for the syllogism is the simplest, clearest and most cogent form of argumentation.

b. Let each disputant take the other's words in exactly the same sense in which they were first uttered. Twisting an

opponent's words to one's own meaning, is foreign to scholastic disputation.

c. Let modesty and charity reign throughout. No sarcasm, no superior airs, no abusive language, no derogatory remarks. Above all, no shouting or thumping of tables; it is a battle of wits, not of voices or fists.

d. Both disputants are seated. In some places, however, it is customary for the defender to stand while announcing the thesis to be defended, and for the objector while making his counter-assertion.

2. GENERAL OUTLINE

Suppose the thesis to be defended is the following: "Philosophy is desirable as a branch of study."¹

The *defender*, standing, begins by saying: The thesis to be defended today is as follows: "Philosophy is desirable as a branch of study." Seating himself, he first explains what he understands by philosophy (S) and in what sense he claims it to be desirable (P). Then passing the centuries in review, he enumerates the various opponents of the thesis, indicating also some of the reasons of their opposition. Finally he proves his thesis by one or more syllogisms. After that he says: And thus the thesis would seem to be proved.

The *objector* now begins: Against the thesis which says "Philosophy is desirable as a branch of study," I argue thus: "Philosophy is undesirable; therefore your thesis is false."

Defender. Against the thesis which says "Philosophy is desirable as a branch of study," it is argued: "Philosophy is undesirable"; therefore the thesis is false. Philosophy is undesirable—I deny the antecedent.

Objector. I shall prove the antecedent. A study which

¹For another example see Coppens, Logic p. 45-7.

does not agree with our natural inclinations, is undesirable; now philosophy is such a study; therefore philosophy is undesirable.

Defender. He first repeats the whole syllogism word for word. Then he says: Regarding the major: A study which does not agree with our inclinations, is undesirable—I distinguish the major: A study which does not agree with any of our inclinations, is undesirable—I concede the major; a study which does not agree with our lower, but does agree with our higher inclinations, is undesirable—I deny the major. Regarding the minor: Philosophy is such a study, I contradistinguish the minor. Philosophy does not agree with any of our inclinations—I deny the minor. Philosophy does not agree with our lower inclinations—I transmit the minor. Therefore philosophy is undesirable—with the distinction given, I deny the conclusion.

Objector. But philosophy agrees with none of our inclinations; therefore my objection stands.

Defender. But philosophy agrees with none of our inclinations; therefore the difficulty stands. Regarding the subsumption: Philosophy agrees with none of our inclinations—I deny the subsumption.

Objector. I shall prove the subsumption. If philosophy agreed with any of our inclinations, it would agree with the higher. Now philosophy does not agree with our higher inclinations; therefore philosophy does not agree with any.

Defender. He again repeats the whole syllogism. Then he says: Regarding the major: If philosophy agreed with any of our inclinations, it would agree with the higher—I grant the major. Regarding the minor: Philosophy does not agree with our higher inclinations—I deny the minor.

Objector. I shall prove the minor. A study which deals only with obscurities, does not agree with our higher inclina-

tions. Now philosophy is such a study. Therefore philosophy does not agree with our higher inclinations.

Defender. He first repeats the whole syllogism. Then he says: Regarding the major: A study which deals only with obscurities, does not agree with our higher inclinations—I distinguish the major. A study which deals with obscurities and leaves them obscure—I grant the major. A study which deals with obscurities to elucidate them—I deny the major. Regarding the minor: Philosophy is such a study—I contradistinguish the minor. Philosophy deals with obscurities to leave them obscure—I deny the minor. Philosophy deals with obscurities to elucidate them—I grant the minor. Therefore philosophy does not agree with our higher inclinations—I deny the conclusion.

Objector. But philosophy does not elucidate obscurities. Therefore my difficulty stands.

And so on until time is called.

3. SPECIAL POINTS

1. For the Defender

The defender gives no reason for his answers, though, of course, he must know them. But he must beware of being "sacked," that is of being forced to retract an answer once given.

Ordinarily, the defender will answer the objections by a *concession* or by a *denial* or by a *distinction*. He concedes a proposition which is true; he denies those which are false; he distinguishes ambiguous propositions, i.e. those which have a true and a false meaning, granting the former and denying the latter.

The ambiguity may be contained in any of the three terms of the opponent's syllogism, and as each term occurs twice, any distinction must be applied to two propositions. If M is

ambiguous, the major must be distinguished and the minor contradistinguished. If either S or P is ambiguous, distinguish the premise in which the term occurs and "likewise" distinguish the conclusion.

Other forms of reply:

a. If the objector's syllogism violates any of the rules of the syllogism, there is no use replying to the single propositions. Let the defender simply say: "The syllogism *lacks form* or sequence." If asked, the defender must, of course, be ready to tell which rule is violated.

b. A proposition may be *transmitted* if it does not seem altogether true, yet has no special bearing on the objection proposed.

c. Sometimes the objector's argument rests on a *false supposition*. In such a case the defender says: "I deny the supposition, viz. . . ." indicating the false supposition.¹

d. If in a *disjunctive* syllogism the disjunction is incomplete, the defender says: I deny the major, or the disjunction of the major is incomplete. He may then add the member missing or wait until asked to do so.

e. In objections from *analogy* (similarity, a pari), he will often find it necessary to deny the parity.

f. If the defender is asked a *question*, let him, before answering, repeat it word for word. This will not only give him time to think, but also insure mutual understanding.

g. If the *major* is to be denied, let him say: "Begging your pardon, I deny the major." The reason is that before making a universal statement (such as the major usually contains), every intelligent being is supposed to have examined it very carefully; hence to reject a man's universal proposition flatly, is rather a slur on his intelligence.

¹The objector is very apt to base his argument on a false supposition when he does not know the precise meaning of the thesis he is to attack.

2. For the Objector

The objector denies the thesis, but he also supports his denial by means of arguments, the best he can think of. He pretends to be convinced of the opposite. Therefore he asserts the contradictory (or contrary) of the thesis and advances various arguments to prove that he is right.

- a) If a thesis contains several statements, he may direct his attacks against any one of them, leaving the others out of the disputation.
- b) Instead of attacking the thesis directly, he may also object against the arguments brought forward by the defender.

How to prepare objections? There are two sources where objections against a thesis may be found: Reflection and books.

Studying a thesis and reflecting on its meaning and force, the objector may find that it seemingly clashes with other theses or with facts known to him from experience, history etc. Let him jot down these apparent contradictions as they occur to him and throw them into syllogistic form. Let him then try to foresee what the defender, in the light of his thesis, would reply to them and hence how he would subsume on the defender's answers.

Books on the same or kindred subjects are only a secondary means. Their principal purpose is to stimulate reflection, not to furnish ready-made syllogisms and subsumptions.

How the objector is to begin and proceed in the actual disputation, is clear from the general outline. Let him remember three things with regard to the syllogisms he advances.

- a) They should, as far as possible, be *categorical* and of the *first figure*; for in these the form is most convincing. Conditional syllogisms should not be indulged in too often.
- b) Make your syllogisms as *short* as possible; for remember that the defender will have to repeat them word for word.
- c) Do not add the *reasons* for your premises; if necessary,

these will be brought out in the course of the disputation; e.g. when a premise is flatly denied by the defender.

Let the objector also note the following points:

a. If a premise has been *denied*, he must at once prove it by means of a syllogism, saying: I shall prove the major (or minor).

b. If his syllogism has been *distinguished*, he can urge the difficulty by "*subsuming*." The ordinary way of subsuming is to take up the precise member denied in the defender's distinction and to prove it true by means of another syllogism.

c. If the solution given by the defender is not clear, he may ask: Please explain your distinction.

d. If the defender should deny a universal proposition which would seem to be undeniable, the objector may counter by saying: Will you please give me an exception.

e. If the defender denies a disjunction to be complete, the objector may say: Will you please add another member to the disjunction.

3. For the Audience

Scholastic disputations are not much in favor today. Even students of philosophy are often listless and apathetic. The main reason for this apathy is no doubt that many in the audience do not know what to do with themselves during the disputation. Merely sitting there and listening or waiting for a good laugh is not intellectual work. But the audience (the class, as a rule) is meant to do more.

While the defender is repeating the thesis in his own words, let each member of the class see if his conception of the thesis agrees with that of the defender. Ask yourself: Are the defender's definitions and divisions correct? Does he bring out the stand of the adversaries? Are his arguments in good form? Why not use different arguments?

When listening to the objections, reflect how you would answer them. Does the defender's answer really solve the difficulty or only push it back? Are you satisfied with the answer given? Could you urge the difficulty still further? If so, your chance to speak up comes after the appointed objector.

For after the objector's time is up, the time-keeper invites the audience, who may propose any question or difficulty on the matter in hand.

APPENDIX 4

Exercises

Exercise 1

(to page 13)

A. Concerning the following sets of ideas: a. Arrange each in descending order, i.e. with less and less extension. b. Indicate some of the notes by which the ideas of each set differ from one another. c. Enumerate some of the things of which each of the ideas may be predicated. d. Show that comprehension and extension stand to each other in inverse ratio.

1. Cathedral—building—St. Peter's in Rome—church
2. Knife—hardware—cutlery—pen-knife
3. Shoe—covering—sandals—footwear
4. Vulgate—printed matter—bible—book
5. Iron—substance—metal—matter—element

B. Can you supplement each of the following ideas by three others in ascending order?

Buick, Statler hotel, Cunarder, kitchen door

Exercise 2

(to page 14)

Indicate whether the following ideas are universal, particular, singular or collective, and if collective, whether they are universal, particular or singular:

City—a sentence—some building—apple-tree—this parade—family—Julius Caesar—animal—this flock—some mobs—doctor.

Exercise 3

(to page 15)

In the following sets of two ideas, ask yourself: a. Is there

identity or diversity between them? b. Is the identity (or diversity) formal or objective, complete or partial?¹

1. college—poor	5. elephant—puny
2. logic—easy	6. speed—reckless
3. book—novel	7. rabbit—swift
4. building—mansion	

Exercise 4

(to page 17)

What is the extension of the following terms?

Every teacher—summer—a horse—this book—no stone—the White House—a filling station—the man who drove the car—each guest—no team—that street—all towns.

Exercise 5

(to page 17)

Suppose that in each of the following sets, the first term is predicated of the other two, in what sense is it predicated?

1. bank—First National—Savings
2. bank—First National—snowbank
3. automobile—Ford—Buick
4. chair—Chippendale—chair of philosophy
5. city—Chicago—Detroit
6. figure—ten—circle
7. ball—tennis ball—dance
8. slip—a small piece—a lapse in speech
9. bridge—Brooklyn bridge—a game of bridge
10. end—death—purpose

Exercise 6

(to pages 18-19)

In the following sentences, what is the supposition of the subject?

1. Some Indians are crafty.
2. Brave men were living before Agamemnon.
3. No medicine can restore the dead.

¹The ideas may be taken either in the abstract or in the concrete.

4. Cares make wrinkles.
5. Animal is a genus.
6. A ship was in distress.
7. Los Angeles is picturesque.
8. Mathematics is the bane of my life.
9. All horses are animals.
10. Boston is a word of two syllables.
11. Americans love sport.
12. The plant is a living being.
13. The drunkard loves the bottle.
14. The kettle boils.

Exercise 7

(to pages 22-23)

Does the copula 'is' in the following sentences express more than identity, or perhaps something else?

1. Time is money.
2. Shakespeare is a poet.
3. Facts are facts.
4. No news is good news.
5. Methane is CH₄.
6. War is hell.
7. "East is East, and West is West,
And ne'er the twain shall meet."
8. Woe is me.
9. Business is business.
10. All his geese are swans.

Exercise 8

(to pages 23-24)

A. Regarding the sentences given below, answer the following questions: a. What is the quality of each? b. What is the quantity of each? c. By what letter (A, E, I, O) would you therefore designate the single propositions? d. What is the extension of the predicate of each proposition?

1. No aeroplane is indestructible.
2. Some teams are not manageable.
3. All cows are herbivorous.
4. Some books are tiresome.

5. Every lie is cowardly.
6. Not all poets are inspired.
7. No man is hopeless.
8. Some streets are not crooked.
9. Not all invitations are acceptable.
10. All is not lost.
11. Full many a flower is born to blush unseen.
12. Not all who mock their bonds are free.

B. Ask yourself the same questions regarding the sentences of exercise 6 (omit sentences 7 and 8).

Exercise 9

(to pages 24-29)

Examine the following propositions as to a) kind, b) matter and form, c) number of assertions:

1. Poets are born, not made.
2. Open rebuke is better than hidden love.
3. Prejudice and love of truth are irreconcilable.
4. Either New York or London is the biggest city.
5. As the door turneth upon its hinges, so doth the slothful upon his bed.
6. Unless the Lord build the house, they labor in vain who build it.
7. You cannot sleep and read.
8. We cannot possibly win.
9. Where there is a will, there is a way.
10. Dead is he, but not departed;
For the artist never dies.
11. I have neither money nor work.
12. Like father, like son.
13. The earth alone is inhabited.
14. Better are the wounds of a friend than the deceitful kisses of an enemy.
15. Who steals my purse, steals trash.
16. The higher the speed of the machine, the worse the accident.
17. None so hard to convince as those who want to doubt.
18. It never rains but it pours.
19. No admittance except on business.
20. All men think all men mortal but themselves.
21. He jests at scars who never felt a wound.
22. We shall meet, but we shall miss you.

23. Uneasy lies the head that wears a crown.
24. Those who sup with the devil must have a long spoon.
25. Only microbes cause contagious diseases.
26. One bad general is better than two good ones.
27. You cannot chase the dollar and an ideal at the same time.
28. Those who say they despise riches, are either saints or liars.
29. Few, save the poor, feel for the poor.
30. "And to be wroth with one we love
Doth work like madness in the brain."
31. "Every one is out of step except my Johnnie."

Exercise 10

(to pages 31-34)

A. Give the contradictory of the following propositions :

1. Some novels are worth reading.	10. Poets are born, not made.
2. All is vanity.	11. Not all invitations are acceptable.
3. No man is hopeless.	12. Plants have no feeling.
4. Animal is a genus.	13. The mountain you see is Pike's Peak.
5. Nobody can sleep and read.	14. Either New York or London is the biggest city.
6. John is a sailor.	15. Knowledge is power.
7. All men have an immortal soul.	
8. Like father, like son.	
9. The earth alone is inhabited.	

B. Construct complete squares of opposition for the following propositions :

1. Some horse is white.	5. Some victories are disastrous.
2. Knowledge is power.	6. Fame begets envy.
3. No ship leaves port without lifeboats.	7. Poets are inspired.
4. Familiarity breeds contempt.	8. Some books are not tiresome.

C. If in the following sets of propositions, the first is true (or false), what follows with regard to the other?

1. All is vanity—some things are not vanity.
2. Some horse is not black—no horse is black.
3. Some heads are grey—all heads are grey.
4. No star is fixed—some star is not fixed.
5. Some knowledge is power—some knowledge is not power.
6. All honor comes by diligence—no honor comes by diligence.
7. All injustice is hideous—some injustice is hideous.

Exercise 11*(to pages 34-35)***A. Convert the following propositions:**

1. All new things are striking.
2. Some cowards are miserable men.
3. No jazz is music.
4. Facts are stubborn things.
5. Fame begets envy.

B. Are the following conversions correct, and if so, of what kind are they?

1. Some praise is flattery—all flattery is praise.
2. All dogs are animals—all animals are dogs.
3. All cathedrals are churches—some churches are cathedrals.
4. Some Chinamen are not white—no white person is a Chinaman.
5. No dilettante is a scholar—some scholar is not a dilettante.
6. Knowledge is power—power is knowledge.

Exercise 12*(to page 35)***Are the following inferences correct?**

1. There can be universal peace; therefore there is. *invalid*
2. There cannot be universal peace; therefore there is not. *valid*
3. Windmills are possible; therefore there are windmills. *invalid*
4. There are motor engines; therefore they are possible. *valid*
5. Familiarity can breed contempt; therefore it does. *invalid*
6. Man cannot have descended from the ape; therefore he did not. *valid*
7. There are no honest politicians; therefore an honest politician is impossible. *invalid* *too difficult to impossible*
8. Man can sin; therefore he does. *invalid*

Exercise 13*(to pages 41-43)***A. Indicate Figure, Supply Conclusion, Indicate Mood**

1. All animals have senses. All mice are animals.	3. All animals have senses. Some horses are animals.
2. All men are animals. All men have two feet.	4. All birds have wings. Some birds have claws.

5. No plant feels.
Some roses are plants.

6. No dog has wings.
All collies are dogs.

7. Some men are wise.
All men are rational.

8. No plant feels.
The oyster feels.

9. No man is irrational.
Some animals are irrational.

10. All men are rational.
Some animals are not rational.

B. Examine as to Correctness

1. All men are rational.
John is a man.
John is a scholar.

2. All men have a soul.
Horses are not men.
Horses have no soul.

3. All horses are useful.
This animal is useful.
This animal is a horse.

4. Birds are animals.
The cat is not a bird.
The cat is not an animal.

5. Peter is a man.
Paul is a man.
Peter is Paul.

6. Good men obey the laws.
Sailors break the laws.
Sailors are not good men.

7. Man is a species.
Peter is a man.
Peter is a species.

8. All fishes can swim.
Charles can swim.
Charles is a fish.

9. All dogs bark.
This animal barks.
This animal is a dog.

10. All Pierce-Arrows are autos.
A Ford is not a Pierce-Arrow.
A Ford is not an auto.

11. All circles are round.
All circles are figures.
All figures are round.

12. All goats are animals.
All men are animals.
All men are goats.

13. All men are mortal.
All negroes are mortal. (M)
(s) All negroes are men. (P)

14. All birds lay eggs.
The goat is not a bird.
The goat does not lay eggs.

15. Many lawyers are crafty.
Peter is a lawyer.
Peter is crafty.

16. No philosopher is an elephant.
Socrates is not an elephant.
Socrates is not a philosopher.

17. 3 and 5 are odd numbers.
8 is 3 and 5.
8 is an odd number.

18. Some elephants are not wild.
All tigers are wild.
Some tigers are not elephants.

19. All soldiers are an army.
John is a soldier.
John is an army.

20. All soldiers are paid.
No volunteer firemen are soldiers.
No volunteer firemen are paid.

21. All men have two feet.
No bird is a man.
No bird has two feet.

22. Some marine animals are edible.
All oysters are marine animals.
Some oysters are edible.

23. All men are animals.
Brutes are not men.
Brutes are not animals.

24. All these birds are robins.
The sparrow is a bird.
The sparrow is a robin.

25. Some monks are learned.
Luther was learned.
Luther was a monk.

26. Foxes steal chickens.
Herod was a fox.
Herod stole chickens.

27. The truth begets hatred.
Some lies beget hatred.
Some lies are the truth.

28. Bostonians are highly cultured.
New Yorkers are not
Bostonians.
New Yorkers are not highly
cultured.

29. The cat is an animal.
The robin is not a cat.
The robin is not an animal.

30. All metals are heavy.
Gold is heavy.
Gold is a metal.

31. All wisdom is desirable.
A knowledge of slang is not
wisdom.
A knowledge of slang is not
desirable.

32. Who is most hungry, eats most.
Who eats least, is most hungry.
Who eats least, eats most.

33. Some white men have become
presidents.
No aliens have become
presidents.
No aliens are white men.

34. The beings conjured up in
seances are spirits.
The souls of the dead are
spirits.
The beings conjured up in
seances are the souls of
the dead.

Exercise 14

(to pages 44-46)

A. Examine the following hypothetical syllogisms as to correctness of inference:

1. If his heart beats, he is still alive.
Now his heart does not beat.
Therefore he is not alive.
2. If a syllogism violates no rules, it is correct.
Now this syllogism is correct.
Therefore it violates no rules.
3. This metal is either copper or iron.
Now it is copper.
Therefore it is not iron.
4. If you do not study at college, you loaf.
Now you do not study.
Therefore you loaf.

5. Either we shall win or lose.
Now we shall win.
Therefore we shall lose.
6. If you have fever, you are ill.
Now you are ill.
Therefore you have fever.
7. Unless the pond freezes over, we cannot skate.
Now the pond will not freeze over.
Therefore we cannot skate.

B. Supposing that the following propositions are majors of hypothetical syllogisms, complete them according to all moods possible:

1. If John has smallpox, he is unfit to travel.
2. If there is dew on the grass, the day will be fair.
3. This machine is either a Ford or a Chevrolet.
4. Unless we retrench, we shall starve.

Exercise 15

(to page 46)

Expand the following enthymemes into complete syllogisms, preferably categorical:

1. You are sick; you must stay in bed.
2. This syllogism is correct; it violates no rule.
3. Man has a spiritual soul; therefore he cannot have descended from the ape.
4. James will die; he has double pneumonia.
5. Dogs are mere animals, and mere animals cannot reason.
6. You, as you are old and reverend, should be wise.

Exercise 16

(to page 57)

In accordance with the diagram on this page, arrange the following sets of three concepts:

1. book, primer, reader
2. Iroquois, tribe, Mohawk
3. circle, square, figure
4. steamer, ship, yacht
5. baseball, tennis, game

Exercise 17*(to pages 58-60)*

If in the following sets of ideas the first is the subject, in what relation do the others stand to it?

1. Man : white, animal, healthy, banker, rational
2. Water : wet, substance, muddy, fresh, H_2O
3. Oak : tree, living, sturdy, black
4. Dog : swift, being, sentient, black, animal, living

Exercise 18*(to pages 60-61)*

Arrange the following sets of concepts in the form of predicamental trees :

1. Square, figure, circle, quadrilateral, lozenge
2. Vulgate, book, bible, novel
3. Animal, canary, quadruped, biped, horse, hen, cow
4. Jew, Methodist, atheist, theist, Christian, Anglican, Mohammedan
5. Baseball, contract, cards, bridge, game, outdoor, golf, indoor
6. Inauguration, civil ceremony, funeral, baptism, religious ceremony, commencement, ceremony
7. Protestant, oriental, Methodist, religion, Baptist, Buddhist, occidental.

Exercise 19*(to pages 62-64)*

Do the following divisions violate any rule, and if so, which?

1. Churches are either Methodist or Catholic or frame buildings.
2. Books are divided into juvenile and fiction.
3. A house is either a college or a garage.
4. Newspapers are divided into dailies, weeklies and tabloids.
5. Logic is either a science or an art or both.
6. Inference may be immediate or mediate or hypothetical.
7. Some colleges are endowed, others are free.
8. All chemical substances are divided into elements, compounds and mixtures.
9. A chemical element is either a metal or a non-metal.

Exercise 20*(to pages 64-67)*

A. What kind of definitions would you call the following?

1. Philosophy is love of wisdom.
2. Noon is the time when the sun is due south.
3. A college is an institution of higher learning.
4. A pagan is a villager.
5. The potato is an edible farinaceous tuber of a plant of the night-shade family.
6. A physician is a healer of diseases.
7. A circle is a curve generated by one extremity of a straight line revolving in a plane around the other extremity fixed.
8. An American is a citizen of U. S.
9. Water is H_2O .
10. A circle is a round figure.
11. A flag is a national symbol.
12. Typhoid is a fever caused by *Bacillus typhosus*.

B. Do the following definitions violate any rule, and if so, which?

1. Sleep is the image of death.
2. A dagger is a weapon.
3. Man is not an angel.
4. Bread is the staff of life.
5. A net is a reticulated fabric, decussated at regular intervals, with interstices and intersections.
6. Logic is a machine for combating fallacy.
7. Man is a biped who cooks his food.
8. A vehicle is a car for transporting people.
9. Virtue is the opposite of vice.
10. Patriotism is the last refuge of a scoundrel.
11. Flour is something used in cooking.

C. Examine the definitions of "intelligence" which Gruender (Exp. Psych. p. 301-3) rejects, and indicate the rule which each violates. Or study the various definitions of "scholasticism" which are discussed by de Wulf (Scholasticism Old and New, ch. 1, sections 2-3, 5-7; ch. 2, section 1).

Exercise 21*(to page 70)*

A. Change the following propositions into direct arguments (syllogisms of the first figure), and then ask yourself if they are a priori or a posteriori.

1. This substance is gold, because its specific gravity is 19.3.
2. This substance is not gold, because it is not yellow.
3. Theft, being forbidden by the natural law, is a sin.
4. Blessed are the poor in spirit: for theirs is the kingdom of heaven.
5. Philosophy, which teaches man his duties, is very practical.
6. Since Logic teaches us how to think correctly, it is exceedingly important.

B. Change the following propositions into lines of arguments; these may be direct or indirect, comprise one or more syllogisms:

1. Christ is God: if He were not, He would be a liar; for He said: "I and the Father are one."
2. This watch is not gold; if it were, it would not tarnish; gold does not tarnish.
3. "Logic we can always safely trust, provided logic be correct, since logic is only the exercise of reason, and within its own sphere we may always safely trust our reason" (Vassal-Phillips, After 50 Years, p. 38).
4. Advocates of the single tax argue as follows: Since land is a free gift of God, it should not be in private hands, for no free gift of God should be in private hands.

C. Find arguments to prove the following propositions:

1. Logic is useful and necessary (see Coffey, Log. I p. 38-9).
2. Bad books are injurious.
3. Jealousy cannot please God.
4. Theft should be punished.
5. The study of philosophy is to be encouraged.
6. The worship of God is every man's duty.
7. The Saints deserve to be honored.

EPISTEMOLOGY

INTRODUCTION

1. DEFINITION

Epistemology, which is also called "Theory of Cognition," "Critics," "Criteriology," "Major Logic" etc., is the *science of the certitude of our cognitions*.

Explanation :

1. The *material object* of epistemology are 'our cognitions.'
 - a. *Cognition* is one of those ultimate concepts which cannot properly be defined. It may be described as that which we express in our judgments; for before we assert something, we know it; this 'knowing' is cognition.

Subjectively, cognition may then be called an act of the mind by which we know something; objectively, it is that which we know. As in logic, so here, too, we are mainly concerned with *objective cognition*.

b. We speak of *our cognitions*, i.e. those of normal men. We are not concerned with God's knowledge, nor with that of the angels. Also the judgments of abnormal people are beyond the scope of epistemology; for, as regards certitude, no one will put these on a par with the judgments of normal people. Lastly, we exclude animals from our consideration.

Moreover, we only speak of our *natural cognitions*, i.e. those which we can acquire without special divine help or revelation.

2. The *formal object* of epistemology is certitude. Certitude is cognition which is necessarily true and is known to be true. Must our cognitions ever be true? And if so, when, how, why? These are the questions which epistemology discusses.

From the foregoing it is clear that certitude implies truth

and therefore epistemology may also be defined as the "science of the truth of our cognitions."

It is customary and proper to treat in epistemology not only of truth and certitude, but also of the states of mind which fall short of the ideal state. Hence epistemology also has something to say about opinions and errors.

2. DIVISION

1. Existence of Certitude
2. Sources of Certitude:
 - a. In general: Our Cognitive Faculties
 - b. In particular:
Consciousness
External Senses
Intellect
Reasoning
Human Testimony
3. Nature of Certitude
4. Truth and Error

unbelief + will

PRELIMINARY NOTIONS

The first question discussed in modern books on Epistemology is this: What is the initial attitude of the philosopher to be? Shall we begin philosophy as doubters (real or fictitious) or as "dogmatists"? Then there are certain notions and facts which are implied in the very object of Epistemology: the notions of cognition, truth and error, the various states of our mind concerning different propositions.

We shall group these preliminaries under 4 headings.

1. Cognition ?

By cognition we mean a judgment, a statement, an assertion, a proposition, primarily a categorical proposition. And since the copula ('is' or 'is not') constitutes the essential element of a judgment, we mean primarily the copula. Secondly, cognition refers to the other elements which go to make up a judgment, viz. S and P, and to the sources from which we draw our judgments.

2. Truth and Error

In general, truth means *conformity* (i.e. one thing having the same form as another); its opposite is *difformity*.

There are, however, three divisions:

a. *Logical truth* is the conformity of the mind to its object; as when I judge that the sun is round.—The opposite of logical truth is *error*, i.e. positive difformity of the mind with its object; as when I judge that the sun is square.

b. *Ontological truth* is the conformity of a thing to the mind; as when we speak of a true friend, a genuine diamond.—Its opposite is called *false*.

c. *Moral truth* is the conformity of a man's speech to his

mind; i.e. when he says what he thinks.—Its opposite is a *lie*, an untruth, a falsehood.

Epistemology is only concerned with *logical* truth and error. Ontological truth will be discussed in ontology, moral truth in ethics.

3. States of the Mind

As we know from experience, our mind may be in various states in the face of a proposition put before us. Sometimes we say yes or no without hesitation (e.g. are you alive?); sometimes we hesitate (e.g. how high is this building?); sometimes we give up because we know nothing about the matter (e.g. how many fish are in the sea?)

1. We may conveniently distinguish 4 states of the mind:

a. *Ignorance* is the absence of cognition in one who could and especially in one who should know; e.g. a pupil not knowing his lesson.

b. *Doubt* is the suspension of judgment after deliberation; after deliberating on the matter proposed, we do not say yes or no, we neither assent nor dissent.

c. *Opinion* (belief) is hesitating assent (or dissent). We have good reasons for saying yes or no, but we are aware that we may be wrong. In such cases we often say: I guess, I think, I believe, this is probably so etc.

d. *Certitude* (conviction) is unhesitating, firm assent (or dissent), without fear of error. We express this by saying: I am sure, certain, positive.

The proposition itself to which we give a firm assent, is often called a *certainty*. This is what we refer to when we say: This is certain.

2. Various Kinds of Certitude:

a. *Purely subjective certitude* is an assent (or dissent) which is indeed firm, but really should not be firm; as when our ancestors firmly believed that the earth was flat.

Certitude, being a state of the mind, is necessarily subjective. But this certitude is called *purely* subjective, because it does not rest on anything objective.

b. *Practical certitude* is an assent (or dissent) which is firm merely for practical reasons, viz. because otherwise life would be impossible. Thus we are practically certain that the cook will not poison the soup, that the train we are about to board, will not meet with an accident etc.

The term 'practical certitude' may bear yet two other meanings. a) It may refer to that *absolute* certitude which is implicit in some of our actions, actions which we should never do unless we were absolutely sure of something. The student writes his examination paper and hands it in because he is sure he will fail unless he does both. b) A special kind of practical certitude is that of our *instinctive* actions, as when we sleep to regain our strength.

c. *Respective certitude* is an assent (or dissent) based on reasons (motives) which are sufficient for certain minds, but not for all. Thus the child is convinced when mother says so.

d. *Formal certitude* is a firm assent (or dissent) which is necessarily true and known to be true; as when we judge that $2 \times 2 = 4$. Not only is our assent firm, but reality necessarily corresponds to it; moreover we are aware of this conformity between mind and reality.

Formal certitude is the *ideal* state of the mind. Not that it is beyond our reach, but in the sense that in all our cognitions we desire to have this state, and we cannot desire more.

Formal certitude is often called '*objective*', because it corresponds with objective reality and because it rests on objective grounds.

3. Three other points should be emphasized:

a. With regard to one and the same proposition, the state of the mind of the individual may *vary*. One may advance from doubt or probability to certitude; but he may also lose his certitude and drift back or be forced back to doubt.

b. With regard to one and the same proposition, the state of the mind of *different* individuals may vary. One may consider the proposition as doubtful, another as a well-grounded opinion, a third as certain.

c. *Error* is not, properly speaking, a state of the mind. Our mind is made for the truth, and therefore cannot be at rest, legitimately, except when it has attained the truth.

4. Initial Attitude

a. Theoretically, one may take the preceding definitions as implying nothing about their objective validity (sometimes called "nominal" definitions), or as pure fancies (like Alice's experiences in Wonderland), or as evidently corresponding to reality.

Practically and naturally, only the last attitude has any sense, and we shall proceed on that basis.

b. Still, while retaining the objective validity of these concepts in general, it is to be noted that they involve careful thought. They improve on the every-day knowledge which all students bring to philosophy. They are in fact the *scholastic* definitions and distinctions, and as such will be justified in due course.

c. It seems better, however, to defer the discussion of the first question proposed (p. 103) to a later chapter (p. 226).

Part I

EXISTENCE OF CERTITUDE

We are all naturally certain of many things. Who of us doubts that $2 \times 2 = 4$, that there is a world of bodies surrounding us, that there are other people besides ourselves, that we live and move etc.? Nature, or rather God, has made us so that we *cannot* doubt about many things.

Still, there were and are philosophers who maintain, explicitly or implicitly, that we are never formally certain. The principal of these are the so-called *skeptics*; they openly and explicitly deny all formal certitude. But closely akin to them are the *relativists* of our own day.

It is the purpose of the first two theses to show the absurdity of these and similar theories.

THESIS 1

Universal skepticism is theoretically absurd and practically impossible.¹ *cannot be carried out in practice*

Definition of Terms

1. Universal Skepticism

a. A skeptic is one who denies or doubts that we have formal certitude.

A universal skeptic is one who denies or doubts that we *ever* have formal certitude. A partial skeptic is one who denies or doubts that we have formal certitude in a *particular* line of cognition (e.g. in history). The universal skeptic says: Nothing at all is certain. The partial skeptic says: Nothing in history is certain, or reasoning never leads to certitude etc.

Universal skepticism then may be defined as the doctrine or attitude of the universal skeptic. This doctrine may be expressed by the statement: *Nothing is certain*.

b. There is also a distinction between so-called objective and subjective skeptics.

The *objective* skeptic admits that our assents are often firm and unhesitating, but he denies that they are ever rightly so.

¹ All the theses laid down in this epistemology, unless stated otherwise, are *certain* and are held by every unprejudiced person.

On the other hand, most of these theses are *implied* in every sentence we utter, and in every judgment we form in our mind; unless they are admitted as absolutely certain, thought and speech lose their meaning. But from this it follows that the proofs given for them are not strict demonstrations; they are rather meant to show the *connection* between the various elements necessary for formal certitude. Cf. Rickaby p. 116

The *subjective* skeptic denies even that our assents are ever firm and unhesitating. The doctrine of the subjective skeptic may then be put thus: *We are never certain.*

Our thesis is meant against both.

2. Theoretically Absurd

A statement is theoretically absurd if it denies implicitly what it affirms explicitly—or vice versa; as when I should say: I am dead, I cannot speak, this circle is square, all generalizations are untrue.

3. Practically Impossible

A doctrine or attitude is practically impossible if it cannot be carried out in practice; e.g. the advice to stop breathing.

Adversaries:

1. In ancient Greece, prior to Aristotle, the so-called '*sophists*' thought they could prove every proposition both true and false. But as they were mostly rhetoricians and teachers of shyster lawyers, their skepticism served rather a utilitarian purpose; their pupils were bound to win in a law-suit at all costs. Some *Academicians* (i.e. followers of Plato) flatly denied that anything was certain, though they admitted probability for some propositions.

The chief adversary of the thesis is *Pyrrho*,¹ who advised all to affirm or deny nothing, lest they fall into error.

2. There was again a period of raw skepticism in the France of the 16th and 17th centuries (Montaigne, Charron, Bayle). Montaigne's Essays are defined by Lamartine as the "encyclopedia of skepticism." Bayle aimed at producing the

¹To round out one's knowledge, it is advisable to look up the names mentioned in a good History of Philosophy (see p. 268). There the student will also find the reasons advanced by the adversaries for their side.

impression that everything is disputable by showing that everything is disputed.

3. Today, the attitude of many among the intelligentsia is the same as that of the ancient skeptics. Everything is a *problem*; nothing may be settled. These people refuse to believe that many of their "problems" have been settled satisfactorily thousands of years ago, or that the answer is the same today as was given then.

Universal skepticism also underlies the modern demand for *absolute* freedom of thought, speech, press. The advocates of such unbounded freedom claim that every man is free to think, speak or write anything he pleases. Such a claim can only be advanced by those who hold nothing for certain.

Proof of Thesis

MAJOR 1. That statement is *absurd* which denies implicitly what it affirms explicitly.

MINOR Now universal skepticism may be expressed in such a statement.

CONCLUSION Therefore universal skepticism is absurd.

Proof of minor: Universal skepticism may be expressed in the statement: Nothing is certain, or we are never certain. But he who says this, implicitly says: At least one thing is certain, and we are sure of it, viz. this statement. Therefore the doctrine of universal skeptics denies implicitly what it affirms explicitly.

Objection. This argument begs the question. For unless the premises are admitted to be certain, the conclusion is not certain; now the skeptics admit nothing as certain.

A. a) This is not a proof in the strict sense of the word (see p. 108). *b)* The thesis is not directly addressed to the skeptics, but to such as are not yet infected with this extreme form of intellectual despair. To the ordinary sane individual the absurdity of skepticism is manifest enough.

2. That doctrine is *practically impossible*, which cannot be carried out in practice.

Now universal skepticism cannot be carried out in practice. Therefore universal skepticism is practically impossible.

Proof of minor: To carry out practically the doctrine of universal skepticism, one should a) really doubt everything and b) live accordingly. But this is impossible, nor has any skeptic ever attempted it. For a) no one *can* honestly doubt in his mind about his own existence, about the existence of the world around us, about the principle of contradiction etc., though one may, of course, deny them externally. b) Imagine the *life* of a consistent skeptic: Why does he get up in the morning? Why does he eat? Why does he breathe? Why does he dodge autos? If nothing is certain or if he is not sure of anything, he should do none of these things.

Objection 1. If this argument were valid, all skeptics would be *liars*; for to lie is to say the opposite of what is in one's mind.

A. No. Skeptics imagine they doubt about everything. They, too, are certain, like other people around them; but pondering over certain difficulties, they have *argued* themselves into this absurd position.

The "man in the street" is never a skeptic. Many claim to be "from Missouri," but they only "want to be shown." A real skeptic should be taken by the hand and gently led to the psychiatrist; he needs rest of mind and healthy bodily exercise, but his disease is amenable to no arguments. De Kruif probably exaggerates when he calls Ernest Renan, the French rationalist, "such a dreadful skeptic that he probably was never quite convinced that he was himself alive, so firmly doubting the value of doing anything that he had become one of the fattest men of France" (Microbe Hunters p. 168).

Objection 2. The reason why skeptics do the things mentioned, is because they are *practically* certain of the effects that would follow otherwise. Now practical certitude is not yet formal certitude.

A. The 'practical certitude' of the skeptic is not merely a high degree of probability, but involves absolute or instinctive certitude (see p. 105).

Objection 3. "Probability is the *guide* of life." Therefore we do not need formal certitude.

A. Dist. ant. in the sense that in practical life we often must be satisfied with probability, *yes*; in the sense that we can never have more than probability, *no*. See Coffey, Log. II p. 264.

Corollary 1. Therefore we are *sometimes* formally certain, and something is certain. This follows clearly from the refutation of skepticism.

However, let not the student imagine that formal certitude is had but rarely, like turkey for dinner. This thesis is meant merely for philosophical reflection on the attitude of skeptics. Later we shall establish the range of formal certitude.

Corollary 2. Therefore not everything is debatable nor are there two sides to every question.

Corollary

Objections of Skeptics

1. We err *sometimes*. Therefore we may always err.

A. a. This enthymeme may be dismissed as a *sophism*; ab uno disce omnes. b. In the mouth of a skeptic, it is *absurd*; for his antecedent admits a certitude (viz. that we err sometimes), which his conclusion denies. c. *Dist. ant.* we err per se, *no*; per accidens, *yes*. The meaning of this distinction will become clear from thesis 3.

2. The world is full of errors. We make mistakes every day.

A. But not so as to leave no room for formal certitude. Error should make us cautious, but not desperate.

3. People constantly *contradict* one another; what one man affirms, the other denies. Now this would not be if we were ever formally certain.

A. Dist. major: this happens in everything, *no*; in some things, *yes*. See Coffey, Epist. I p. 92.

4. One who cannot tell whether he is right or wrong, is not formally certain. Now we cannot tell when we are right or wrong.

A. Grant major. Dist. minor: never, *no*; sometimes, *yes*. When I say that $2 \times 2 = 4$, I know that I am right and that I cannot be wrong. *How* I know this, is another question, which will be discussed later.

Schol. ^{TOP} One must not demand too much from formal certitude. I may be formally certain a) although I do not know all about the subject, b) although I am unable to solve all objections which might be or have been brought against my

assertion. To demand either as a necessary condition (as did Leibnitz, Wolff etc.), would render certitude illusory. For who on earth knows all about any subject, or who knows all objections and can solve them? *Ne quid nimis*. See Joyce p. 338-9; Coffey, *Epist.* I p. 145; II p. 284-290; Rickaby p. 117.

Readings

St. Augustine, *Contra Academicos*; *Cath. Encycl.*, s. v. Certitude, Scepticism; *Coffey*, *Ep.* I p. 135-147; *Coppens* p. 56-9; *Cunningham* p. 6-14; *Donat*, *Critica*, thesis 44; *Jouin* p. 43; *Lahr* II p. 297-307; *Lord* p. 8-13; *Mercier-Parker* I p. 353-6; *Rickaby* p. 134-7—On causes of doubt: *Hettinger*, *Natural Religion* ch. 1.

Important notes

THESIS 2
Pragmatism are false in Theory and they both
 i.e. a denial of truth

Relativism is absurd and leads to skepticism.

1. Relativism is the theory which would make all truth to be *relative*, that is, dependent on and variable with time, place, age, person, environment etc.

According to relativists, what is true today, may become false by tomorrow; what is true in America, may be false in China; what is true for Peter, may be pronounced false by Paul etc. Truth then would vary with time, place, person etc. "Man is the measure of all things," as Protagoras put it of old.

Says the editor of the Forum (June 1929): "American thought and conduct today is a concrete exhibit in human behavior of Einstein's theory.¹ What is considered absolutely wrong in a village meeting, may be praised as right in a neighboring city. One group assembled at lunch condemns what another group at dinner extolls. Virtue is being measured by sliding standards instead of a fixed scale of ten commandments, and Christ's two commandments are often invoked to turn Moses' upside down."

Bertrand Russell points out the relativism underlying modern nationalism and industrial strife: "The idea of one universal truth has been abandoned: there is English truth, French truth, German truth, Montenegrin truth and truth for the principality of Monaco. Similarly there is truth for the wage earner and truth for the capitalist. Between these different 'truths,' if rational persuasion is despised of, the only possible decision is by means of war and rivalry in propagandist insanity" (Atlantic Monthly, Febr. 1935).

¹ Still, Einstein's theory of relativity has nothing to do with our thesis; it is a purely physical theory concerning our knowledge of some definite objects, viz. the motion and size of bodies and the simultaneity of events. Neither Einstein himself nor his more serious followers inferred from it the general theory of relativism.

corollary flows naturally

*Pragmatism teaches we can never know
 what is true or false in itself*

2. Akin to relativism is another epistemological heresy, called *pragmatism* (F. C. S. Schiller, William James). This theory teaches that we never know whether a proposition is true in itself or not, but that we must be satisfied if our judgments "work." Thus $2 \times 2 = 4$ may be called true because it always works out well; if $2 \times 2 = 5$ worked out better, we should call that true.

Since the death of William James in 1910, John Dewey is the leader of the pragmatist movement in America, though he prefers to call his system *instrumentalism*. By many he is rated as the only American about whom has been formed a regular philosophical school.¹

3. Both relativism and pragmatism are rampant today particularly in the field of religion, ethics, esthetics, metaphysics, that is to say in matters beyond sense cognition. "Many now look on philosophy as a body of doctrines purely relative to a particular age. Philosophical systems, they hold, must come and go like the fashions of our dress. We should not regard them as more than a convenient mode of representing facts" (Joyce p. x). According to Zybura (Present-day Thinkers etc. p. 119), non-Scholastic thinkers find fault with Scholastics who seem to claim that theirs is a final or definitive system. "Most non-Scholastics would insist that it is but a phase of the historical development of thought."

Meaning of Thesis:

As against relativism and pragmatism, we claim that there are at least some truths which are *absolute* and independent of time, place, person etc. Once true, always true.—Not only

¹ See a good evaluation of Dewey's system in Dr. O'Hara's "The Limitations of the Educational Theory of John Dewey"—a dissertation of the Catholic University, 1929. See also H. Wickham, The Unrealists, ch. 7.

that, but we also claim that we can know some of these truths, so that our cognition, too, can rightly be called absolute.

Observe, however, the following points :

a. Some words are often or generally taken in a *relative* sense ; e.g. big and small, rich and poor, right and left, up and down etc. A boy may be big for his age, but small compared to his father. In such cases, the relation intended should be accurately defined.

b. Poison is harmful. Yet we know a) that poison may be medicinal in small quantities, and b) what is harmful or even fatal for one organism, may be beneficial to another ; what is poison for the goose, may be meat for the gander. A *complete* definition of a poison would therefore include the specific organism to which it is harmful, the definite quantity in which it is harmful etc.

c. There are propositions which refer to things *subject to change* ; e.g. the weather was fine (yesterday), the weather was ugly (the day before). In such cases, the time or place understood should be brought out to make the proposition definite.

d. A truth may grow on us. We may understand a truth *more fully* and completely as we grow up, or a truth may come home to us on a special occasion (e.g. during a mission or retreat). But that does not change the truth in itself, nor does it make our former cognition of it false.

Proof of Thesis

1. That theory is *absurd* which denies implicitly what it affirms explicitly.

Now relativism is such a theory.

Therefore relativism is absurd.

Proof of minor. Relativism affirms explicitly that all truths change with time, place etc. ; but implicitly it claims

that this *one* statement is itself unchangeable and absolutely true.

2. A theory which implies that we can never be certain, *leads to skepticism*.

Now relativism is such a theory.

Therefore relativism leads to skepticism.

Proof of minor. We can only be formally certain of propositions that *cannot* be false; now relativism implies that *all* propositions may be both true and false; therefore relativism implies that we can never be formally certain.

3. Also *pragmatists* must admit some absolute truths, e.g. that the multiplication table works now—or has worked in the past—or will work.

Cor. 1. Therefore this thesis, too, is meant primarily for those who hold some truths to be absolute. No argument could convince a man who would profess himself a relativist—and stick to it. *and he admits thereby contradiction at least.*

Cor. 2. Therefore we must make a distinction between the subjective (psychological) and the objective aspect of our cognitions, particularly of our judgments. Subjectively we judge as we do because such is the nature of our intellects: *what is known is in the one who knows it according to the capacity of the intellect which is known* *is in the one who knows it according to the capacity of the one who knows it* as the Scholastics say. But objectively the standard for any intellect, human or divine or angelic, is the same.

Cor. 3. Therefore some propositions may also be pronounced *absolutely false*, that is, false at all times, everywhere, to all sane individuals, to God and man; e.g. $2 \times 2 = 5$.

Objections

1. As long as John walks, it is true to say "John walks" but when he sits down, that same proposition becomes false. Therefore what is true, may become false.

A. a) This argument does not establish the contradictory of our thesis. We deny only that *all* our judgments are relative. b) If the

relation of time or place is brought out, there is no more contradiction between "John walks" and "John sits down."

2. What one calls good, useful, beautiful, another may call bad, harmful, ugly. Think of the weather, dress, form of government etc. Therefore truth varies from person to person.

A. Such words *include* a relation to something else, often to the speaker and his viewpoints. If this relation is brought out, the contradiction vanishes. Thus rain may be good for the farmer, bad for the parade.

3. If the same things were true or false for everyone, there would be no quarrels. Now there are plenty of quarrels in the world.

A. *Grant major. Dist. minor*: people quarrel about everything, *no*; about many things, *yes* (see p. 112).

4. The thesis assumes that the cognitive faculties are essentially the same in *all men*, that the intellect is similarly affected in all by the same kind and degree of evidence, that, therefore, all men are similarly impelled to assent to the same truth. Now this assumption is purely gratuitous.

A. *Dist. major*: in all men, whether normal or abnormal, *no*; in all normal men, *yes*.

"This assumption itself is not, perhaps, an axiomatic truth, but is rather one of those postulates or assumptions which are indispensable to all research, and which are justified only by actual human experience" (Coffey, Log. II p. 323).

(an exposition of a doctrine directly connected with the thesis.) SCHOLION

Origin of Relativism

notes

Relativism, which is very prevalent today, had a twofold origin:

a. *Kant's theory of cognition*. According to Kant, we can never know the "things in themselves" (noumena), but only the appearances of things (phenomena). His reason is that our cognitive faculties have their own peculiar structure, i.e. are endowed with so-called "subjective forms," on account of which we *add* something of our own to whatever we know. We say that $2 \times 2 = 4$, but only because such is the structure of our intellect; if we had a different intellect, we might or would judge that $2 \times 2 = 5$.

Obj. The "thing in itself" is the thing unknown. Now the thing unknown cannot at the same time be known. Therefore the "thing in itself" can never be known.

A. This is a pure sophism, but widely used after Kant, who invented it. We deny the major. The "thing in itself" is the thing as it is, whether it be known or not.

Kant's theory is also the basis of modern *psychologism*, which would make all our cognitions dependent on our peculiar psychology (see p. iii).

Looking at cognition from another angle, Neo-Hegelians think that we can never know any object in itself, but only its *relations*, and that these relations are essentially figments of the mind. We shall take up this theory in the chapter on truth and error.

b. Evolution. This theory primarily teaches that natural species gradually evolve themselves from the lower and simpler forms to higher and more complicated ones. As applied to man, it teaches that our intellect is only a further development of the brain of lower animals.

An epistemological corollary of the same theory is that we now hold some propositions to be true, because we have reached the *present* stage of evolution; but millions of years ago, man may have judged the opposite to be true, and nobody can tell what man will say a million years hence.

This theory then would make truth dependent on the stage of our *intellectual development*, just as the child believes in Santa Claus, whose existence the adult denies.

Readings

On relativism: *Coffey*, Ep. II ch. 22; *Cunningham* p. 67-75; *Glenn*, Crit. p. 177-185; *Maher* p. 157-9; *Rother*, Truth and Error p. 76-84; *Ryan* p. 209-213.—On pragmatism: *Coffey*, Ep. II p. 353-366; *Ryan* p. 166-177; *Walker*, in Cath. Encycl. s. v. Relativism—On Neo-Hegelianism: *Joyce* p. 248-251, 338-9.

Part 2

and

SOURCES OF CERTITUDE

The purpose of the first part was to show in a general way that we are sometimes formally certain. We showed this indirectly by pointing out the absurdity of two epistemological theories which deny all formal certitude, viz. of skepticism and relativism.

We now ask more definitely: When are we formally certain?

This question will be answered by an appeal to the various cognitive faculties with which nature (God) has endowed us to arrive at truth. They are the natural means by which we acquire new and certain knowledge. (By 'new' knowledge we do not exactly mean that which was never had before, but that which is not had, at least ordinarily, by any other means.) For this reason they are also called sources of certitude or cognition.

For the peculiar purpose of epistemology, Scholastics distinguish 5 sources: consciousness, the external senses, intellect, reason, human testimony. The objects which normally correspond to them, are: present internal facts, present external facts, concepts and first principles, truths to be demonstrated, past external facts.

We shall first of all prove the infallibility of our faculties in general, then point out in particular how far the infallibility of each extends and what cautions are to be taken against error.

CHAPTER 1

The Faculties in General

THESIS 3

all our cognitive faculties are by nature free from error
We have many cognitive faculties, which are per se infallible.

1. Cognitive Faculty

A faculty is the natural power of doing something, that is, a power given us by nature for a certain purpose; e.g. the faculty of speaking, walking, seeing.

A cognitive faculty is the natural power of knowing something (cognoscere = to know).

Now, to *know* is to apprehend a thing *as it is*; to apprehend a thing otherwise than it is, is to misapprehend, to err. Consequently, a cognitive faculty may also be defined as the natural power of apprehending things as they are.

That which the cognitive faculty is meant to apprehend, is called its *object*. As opposed to this, we have the *subject*, which is either the whole being apprehending an object, or the faculty by which the being apprehends it.

Again, there is a distinction between the material and the formal object of a faculty. The *material object* is the whole range of things which the faculty can perceive; as e.g. the eye can perceive all bodies. The *formal object* is that by reason of which the faculty can perceive things; as e.g. the eye perceives bodies because of their color.

2. Infallible

do not err cont
Infallibility is the impossibility of erring, or the necessity of apprehending things as they are. One who is infallible, not only apprehends things as they are, but he must do so.

He need not apprehend always, but when he does, he must apprehend rightly.

3. *Per se*

“*Per se*” means “*as intended by nature*,” hence normally, generally, ordinarily. The opposite is called “*per accidens*,” “*not as intended by nature*,” “*against the intention of nature*,” hence abnormally, not ordinarily.

Thus to the normal eye the rose appears as red; the color-blind see it as grey, which is an abnormality.

Meaning of Thesis:

We claim that the cognitive faculties are given us by nature for the one purpose that they may reveal to us things *as they are*. We deny a) that they are *per se* fallible, so that they would lead us positively into error, b) that they are indifferent toward truth and error.

If a faculty be restricted to a special class of objects, it is, of course, infallible only within that class. You do not trust your eyes to tell you the temperature of the water in the bathtub.

Adversaries

1. *John Stuart Mill* (Logic III 5, 2) vigorously objected to ‘faculties’; they would, he thought, be *occult forces*, like the *vis dormitiva* of opium, explaining nothing.

But the chief opponents of the first part of the thesis are some American *psychologists*, who seem to bear a grudge against the very term ‘faculty’; you may even hear scholastic philosophy decried as ‘faculty philosophy.’ According to *J. B. Watson*, “behaviorism knows only the relation between stimulus and response; what are called faculties, are due to *habit formation*, which behaviorists call the process of *conditioning*” (in Encycl. Brit. s. v. Behaviorism). *R. H. Wheeler* (Science of Psych. p. 23): “All behavior was to be described exclusively in such physiological terms as nerve impulse, reflex and glandular response.”

2. We may put down René Descartes (1596-1650), the father of "modern philosophy," as the principal adversary of the second part.

Descartes, having long been besieged by all manner of doubts about what he had been taught by the Jesuits, resolved to find a solid basis for certitude. With this end in view, he resolved to doubt all his faculties, until he should come to something he could not possibly doubt. This is called methodic doubt. Descartes then passed in review each of his cognitive faculties and pretended to discover that none of them was trustworthy. None, that is, except consciousness. His own doubt and his own existence he felt incapable of doubting. Hence he laid down as the fundamental truth of philosophy: "Cogito, ergo sum." *I think, therefore, I am*

Proof of First Part

A cognitive faculty is a natural power of knowing.

Now we have many such powers.

Therefore we have many cognitive faculties.

Proof of minor: a) Unless one is a complete skeptic, he must admit that we truly know some things. Now "ab esse valet illatio ad posse." Therefore we have the power of knowing things. b) We know things by seeing them, hearing them, reflecting on them, reasoning to them etc. Now these actions cannot be ascribed to only one faculty; their modes as well as their objects are too different. c) These powers are innate; they may be perfected by judicious use, but they are not acquired by us in the sense in which we acquire e.g. skill in typewriting. If they were mere habits, some people would have them, others would be without them.

Obj. Cognition implies "transcendence"; for the thing known is something distinct from and independent of the act of cognition. Now such transcendence is impossible; for neither the

*that inference is valid from existence to
possibility*

mind nor its act can go outside itself. (This is the fundamental difficulty of what is called "idealism" in epistemology.)

A. Grant major. Deny minor. a) If this objection were valid, *all* cognition would be doomed; for it applies to every act of cognition. b) Those who urge this objection, err in their method. We certainly know things, though they have an existence of their own (e.g. eggs at breakfast). This is a fact. How we know them, need not worry the ordinary man; and the philosopher should first accept the fact and then find out the how or why—not vice versa. Cf. Mahony, *Cart.* p. 79; Rickaby p. 273-4.

Schol. Scholastics carefully distinguish two classes of cognitive faculties in man: senses and the intellect.

The *senses* are organic faculties, that is, they depend intrinsically on some bodily organ, in which and with which they work. They are either *external* (the 5 senses) or *internal* (memory, imagination etc.).

The *intellect* is an inorganic faculty, that is, it does not depend intrinsically on a bodily organ. Whereas, however, we have several senses, we have only *one* intellect; but this faculty has various functions; it apprehends, judges, reasons, reflects, abstracts etc.¹

Perfect cognition is had by us only in the *judgment*, which is an act of the intellect (mind). The other functions of the intellect, as well as all the acts of the senses, *merely apprehend* (experience) without judging in the strict sense of the word. They gather the raw material for the intellect to work over into judgments.

Now in epistemology we primarily speak of perfect cognition, which is certitude. Therefore we primarily speak about the *judgments of the intellect*: affirmative and negative, categorical and hypothetical.

¹This essential difference between senses and intellect is proved in psychology. It is not properly supposed here, but introduced for convenience.

Proof of Second Part

1. (With regard to the *intellect judging*)

a. We are sometimes formally certain.

Now we could never be formally certain, unless our intellect when judging were *per se* infallible.

Therefore our intellect when judging is *per se* infallible.

Proof of minor: We cannot compare our judgments with reality, because we have no higher faculty than the intellect and no higher function than the judgment. If therefore our intellect when judging were *per se* fallible or indifferent toward truth and error, if its very nature were not such as to apprehend things as they are, we could *never* be certain.

Illustration. If I do not know that *photos* must, by their very nature, picture things as they are, I could never be sure by looking at a photo that the reality is like the picture. If there were a camera made purposely so as to distort reality, or at least as liable to distort as to make a correct copy, I could never trust the pictures made with it.

b. We often make mistakes when judging.

Now the very word '*mistake*' would have no meaning, unless the intellect when judging were *per se* infallible.

Therefore the intellect when judging is *per se* infallible.

Proof of minor: We do not say that a man took the wrong road when he is merely out for a walk; in that case, one road is as good as another. But we do speak of taking the wrong road when he sets out with a definite *goal* in mind.

c. Doubting the essential aptitude of the mind for knowing the truth is tantamount to skepticism.

Cor. Therefore the fact that we formulate our cognitions in judgments, does not essentially *vitiate* them.

This corollary is important, because some philosophers claim that we necessarily *distort* reality when we judge. They point out that there are no judgments outside the mind,

and that, to formulate a judgment, we break up reality into S and P, whereas in reality S and P are undivided.

No doubt, this method of handling reality implies an *imperfection*; God does not resort to such a roundabout way. Still the imperfection affects only the *way of knowing*, not *that which we know*; if it did, skepticism would be the inevitable result.

2. (With regard to *all* cognitive faculties)

major
If there were a faculty which is *per se* fallible or indifferent, a) that faculty would be no faculty at all, b) there would be no formal certitude at all.

minor
Now the consequent is absurd.

Conclusion
Therefore also the antecedent.

Proof of major: a) The very word 'faculty' implies a peculiar nature, a special purpose. b) If one faculty can be *per se* fallible or indifferent, all can, even the intellect when judging; but if all faculties are *per se* fallible or indifferent, then certitude is impossible.

Cor. 1. Therefore the *formal object* of all cognitive faculties is truth.

Still, truth, as used of all kinds of cognition, is an *analogous* term. And this holds not only when we compare the cognitions of animals, men, angels, God, but also when we speak only of all human cognitions, as we do in the thesis. Truth as had in the judgment is perfect; truth as had in any other act of cognition is essentially inferior.

Cor. 2. Therefore the *abstraction* which we find in all our cognitive faculties, does not *per se* lead us into error. It argues imperfection in the mode of knowing reality, but not an essential defect. "Abstrahentium non est mendacium."

That *all* our cognitive faculties abstract in some way, is evident. My eyes perceive only color, omitting all the other qualities of the object; my ears perceive only sound etc.

Also the internal senses (memory, imagination) abstract. I can represent to myself the shape of an apple without its color, and I can consciously fix it as such in my memory.

The abstraction proper to the intellect (see p. 14) is of an essentially different type. The intellect can omit *individuality*, which no sense can; it can even represent to itself a form without any subject at all, as e.g. animality, humanity.

Still, although these modes of abstraction are not a defect ("privatio"), yet, being an imperfection, they are apt to lead the unwary into *error*. We easily judge to be distinct what we perceive by distinct faculties, or we congratulate ourselves that we have grasped the whole when we have perceived only a partial aspect of it.

Objections

1. We may be the sport of some malignant power ("malin genie," as Descartes says), who gave us faculties radically deceptive.

A. No. We can and do test or check our faculties, and we discover agreement in thousands of cases: agreement between my various present cognitions, agreement between my cognitions and those of other people. Could universal deception produce such a result?

2. Only God and the Pope are infallible.

A. There is a difference. God's infallibility is absolute, due to Himself alone; our infallibility is due to God and very limited.—The Pope's infallibility is a special divine privilege; ours is a gift of nature common to all men.

3. If all our faculties were infallible, error would be impossible. Now error is not only possible, but a reality.

A. *Dist. major*: if they were absolutely perfect, *yes*; since they are finite and imperfect, *no*.

4. To be formally certain, it is not only necessary that the faculties be infallible, but also that the intellect when judging be *aware* of this infallibility. Thus if one does not know the mechanical precision of the camera, a photo will mean no more to him than a drawing.

Now the intellect does not know this infallibility.

A. *Dist. major*: it is necessary that the intellect be aware of this infallibility either implicitly or explicitly, *yes*; explicitly, *no*.

This *implicit* recognition of its own infallibility is had in the very act

of judging. When the intellect judges, it becomes aware of its own nature, viz. that it is made to judge in accordance with reality.¹

Schol. The thesis does not rest on the scientific or philosophic explanation of the 'mechanism' of cognition. Else there would have been no formal certitude before scientists and philosophers had finished their inquiries. As a matter of fact, these inquiries are of comparatively recent date, and many questions are even now disputed. But mankind existed and was formally certain of many things thousands of years before scientists and philosophers set to work.

Hence it is wrong to say that epistemology *rests* on psychology. This would be putting the cart before the horse.

Readings

On faculties in general: *Coffey*, Log. II p. 128-130; *Commins*, in Thought 1937 p. 129-130; *Glenn*, Crit. p. 13-41; *Pyne* p. 153-9.—On Descartes' methodic doubt: *Cath. Encycl.* s. v. Descartes; *Mahony*, Cartesianism ch. 2.—On behaviorism: *Gruender* p. 240-1; *H. Wickham*, The Unrealists ch. 7; *Fulton J. Sheen*, Old Errors and New Labels p. 199-209.

¹This is the solution of S. Thomas (De Veritate qu. 1 a. 9). It alone renders superfluous that comparison with reality which Kant and his followers demand. Cf. Rickaby p. 24-8.

CHAPTER 2

The Single Faculties

I. CONSCIOUSNESS

THESIS 4

Consciousness is absolutely reliable with regard to our present internal acts, namely in its direct reports or its immediate judgements is entirely free from error

1. Definition (i.e. "per se" + "per accidens.")

Consciousness is the faculty (or act)¹ by which we experience our present internal acts as ours. It may also be used in the sense of "awareness of our present internal acts," or of the "sum-total of our internal acts which we experience."

To explain:

a. To be conscious of something, means to be aware that something is going on within ourselves. We are not directly conscious of anything outside of ourselves.

b. Consciousness *experiences* its object.

Experience here does not mean a thrill, a quivering sensation, a surge of emotion, not even a titillation. These may and at times do accompany an experience, but we prescind from them. Experience is immediate cognition of an actually existing object in the concrete. That is to say: a) experience is not reasoning, but cognition without the aid of a syllogism; b) we cannot experience except what actually exists; c) we experience the object with and in its individuality, not in the abstract; a toothache hurts worse than its definition.

¹What is the psychological nature of consciousness, is rather obscure; hence we say in the definition "faculty *or* act." But this obscurity need not worry us in epistemology. (Cf. Fröbes, Psych. spec. I p. 145-153, 201-206; II p. 46-48; Sortais I p. 140-1).

c. Consciousness reveals to us our acts *as ours*. We are not merely passive onlookers; consciousness reports to us the act as being our act, not as hanging in the air or as merely somebody's. Hence we do not say: There is a toothache, or somebody has a toothache, but I have a toothache.

d. Consciousness (as act) and the act of which we are conscious are not two acts, but one and the same.

This is therefore what modern Scholastics (since Suarez) call "conscientia directa" or "conscientia concomitans." When Aristotle and the older Scholastics speak of "conscientia," they mean "conscientia reflexa," an act of the intellect as *distinct* from the act it considers (attention, introspection, reflection, judgment).¹

2. Existence

a. That we are conscious of many of our acts and that we therefore have consciousness, is so evident that scarcely anybody has ever denied it. All the judgments whose subject is 'I' and whose tense is the present, are derived from consciousness. So are those whose subject is 'I' and whose tense is the past, though these involve another faculty also, viz. memory. —Besides, we all know and say that sometimes we are conscious, sometimes we are not (e.g. in sleep, under ether).

b. Behaviorists (like J. B. Watson) not merely ignore consciousness absolutely, but deny its existence. To them consciousness is but an "indefinable phrase," and all man's actions are but "reflex actions" (like the twitchings of a muscle).

This is sheer nonsense. If behaviorism is true, then there is no knowledge at all, not even sense cognition; if behaviorism is true, then man has no soul, at least no spiritual soul;

¹See *Coppens*, Logic p. 63, 66-7; *Donat*, *Critica* p. 100-1.

man is no more than a brute, even less than the brutes we know; for they, too, have some sort of consciousness, though they are never self-conscious.—And how will behaviorists explain the facts of our conscious life: memory, thought, habit, desire, love, anger? Ignoring them is no explanation.—Another contradiction is pointed out by Gruender p. 364-5.

c. Some modern psychologists (Spencer, Comte, Maudsley) claim that we are not conscious of our present acts, but only of those immediately *past*; "no man is conscious of what is, but only of what he was a moment before."

Also this theory is contradicted by daily experience. To be conscious of a toothache, I do not have to wait till after the tooth is pulled. Cf. Rickaby p. 81-2; Fröbes I p. 5-6.

3. Object of Consciousness

a. The proper objects of consciousness are our own "present internal facts," i.e. our thoughts, desires, judgments, emotions, decisions, affections etc.

But a) consciousness as such advises us only of their actual presence within us; it says nothing about the *nature* or the *cause* or the *precise location* of these acts. b) Consciousness says nothing about our *past* or *future* internal acts. c) Consciousness does not report *all* internal acts; thus we are not conscious of the process of digestion, of the circulation of blood etc. But consciousness does report the so-called 'organic sensations': physical ache, strain, hunger, thirst, tingling etc. Cf. Gruender p. 14-18.

b. At least some of our conscious acts (e.g. thoughts, desires) have their own object, as when we think of the Sacred Heart. Such direct objects of internal acts are called the *indirect* object of consciousness.

Adversaries

Hardly anybody before American *behaviorists* denied either the fact that we are conscious of our internal acts or the absolute trustworthiness of consciousness.

Proof of Thesis

✓ 1. That which all accept as true, which all feel themselves forced to accept as true, on which all rely as true, which only an insane person doubts or denies—is true.

Now all accept as true the immediate data of consciousness. Even Pyrrho, the arch-skeptic, allowed the reality of the data of consciousness, and Descartes, who tried to doubt everything, could not doubt his own thought, relying, of course, on his consciousness.

Therefore the immediate data of consciousness are true.

✓ 2. If one were to assert the untrustworthiness of his consciousness, he would contradict himself. For his assertion could only be based on its trustworthiness.

✓ 3. The only error to which consciousness could be subject, would be to mistake appearances for reality (as happens e.g. in the external senses).

✓ Now for consciousness, appearances and reality are the same; for conscious acts exist when and as they appear.

✓ Therefore consciousness is not subject to error.

SCHOLION**Interpretation of Facts**

Although we cannot err as long as we rely on consciousness, yet error may slip into the interpretation of our conscious acts. Now every judgment, even if immediate, implies some interpretation. For, in every judgment we classify, bringing the subject (S) under a general, *abstract* concept.

But now a) a man's abstract concepts may be confused,

b) the internal facts themselves may be similar and hence easily confused (e.g. toothache and neuralgia, acts of the imagination and intellect), c) one may be careless and hasty in the classification. Moreover, d) when a man wishes to manifest his internal acts to somebody else, the difficulty is even greater; for there may also be a defect in his vocabulary.

Still, it is clear that all these possible impediments do not pertain to consciousness *as such*. All we claim is that, as long as a man merely enunciates what consciousness reports to him, his judgment cannot err.

Objections

1. To insane people consciousness often reports things which are not so; e.g. that they are kings, that they have a stomach of glass etc. Therefore even immediate judgments of consciousness can be false.

A. Insane people habitually *misinterpret* that which consciousness reports to them.

2. Those who had an arm or leg amputated, often complain of a pain in the amputated limb. Now they certainly have no pain in the amputated limb.

A. Consciousness reports to these people the presence of pain, which is true. Another question is *where* the pain is located. But the precise location of an internal fact does not pertain to the sphere of consciousness. In the case mentioned, the pain, owing to imagination, is referred at first to the amputated limb; after some time, this error of the imagination is corrected and disappears.

3. Some people imagine they are sick.

A. Sometimes such people are really sick, though perhaps not of the sickness of which they complain; they may err with regard to the nature or cause or exact place of the sickness, which lie outside the sphere of consciousness.—It may also be that a man by a series of reflex acts, persuades himself that he is sick.¹

4. If consciousness were absolutely infallible, we could never doubt our internal facts. But we often doubt. Thus we sometimes doubt

¹ Actuality and its picture in the imagination resemble each other very closely. So it may come about that a hypochondriac mistakes the picture for the actuality. Even more; the imagination is at times strong enough to produce something like actuality; we have then hallucinations.

whether we are awake or dreaming ; at other times we doubt whether or no we have yielded to a temptation, whether we are really sorry for our sins etc.

A. Dist. major: as far as immediate judgments are concerned, *yes* ; in other judgments, *no*. The judgment that I am awake (and not dreaming) is based on the orderliness, cohesion, rationality of both internal and external facts. Hence it is not an immediate judgment. Doubts in the other two cases are due to misinterpretation of facts which are very similar.

SCHOLIA

1. Nature of the Conscious Act

Let no one misunderstand us when we say that consciousness does not report the nature of the conscious act. We only mean its nature in the abstract. But consciousness does report its nature in the concrete, that is, with all its accidental and individual modifications, its duration and intensity, the succession or simultaneity of various acts etc. To abstract the nature from this conglomerate, is the work of analysis and reasoning.

2. Consciousness of the Ego

The Ego or self is contained in all acts of consciousness. Sadness without anybody being sad, is impossible. The *Ego as the subject* may be less prominent in cognitions than in volitions or emotions, but it is perceived all the same as part of every conscious act. Nor is it arrived at by any process of inference or reasoning, but is perceived just as immediately as the act itself. Therefore, there is not merely a "stream of conscious acts" (as Wundt, James etc. would have it), but also the Ego as the subject of all conscious acts. One is as real as the others.

H. Spencer, Ziehen etc. object to this : If the Ego were perceived in the conscious act, subject and object would be identical, the subject would become its own object ; now the consequent is impossible.

A. Grant major. Deny minor. Consciousness is a fact, and in every conscious act I, the subject, become aware of myself ; I

perceive my joy not merely as joy floating in the air, but as my very own. The subject thus becomes object, without ceasing to be subject. *Contra factum non valet argumentatio.* See Fröbes, *Exper. Psych.* II p. 102; Rickaby p. 169-171.

3. Consciousness of our Body

We are not only conscious of ourselves, but also that we are *extended in space*. Certain sensations which we experience (touch, pain, cold) are evidently not concentrated in a mathematical point, but extended; we are also conscious that certain sensations, had simultaneously, are distant from one another (e.g. an itching toe and a headache); we may become aware of an increase or decrease in the distance between two simultaneous sensations even with our eyes closed. See Maher p. 105.

Therefore we are sure that we have a body, and that this body is part of our Ego.

4. Memory

1. Immediate memory

At the outset, let us distinguish two kinds of memory. So-called immediate memory is the "conscious retention of a past experience side by side with the contents of the next experience which is here and now in the focus of attention" (Gruender p. 187). When we read a sentence, our eyes see the single words successively, not simultaneously, and we are conscious of the single acts of seeing. Yet, unless the sentence be unduly long, at the end the *whole* sentence is before our mind and in our consciousness; it must be—or else we cannot understand the meaning of the sentence as a whole. Nor do we, at the end, recall the beginning and the middle, as we recall the events of yesterday. The same may be observed when we read or hear a terse syllogism.

Immediate memory then is a fact. But immediate memory

is also *per se infallible*. "The man who would argue against the trustworthiness of memory, would, like every other skeptic, assert its trustworthiness in his argument against it. For, to go no further than his argument itself, what happened the ten-billionth part of a second ago, is as truly past as what happened a billion centuries ago; hence he can never state his conclusion unless he trusts memory for the fact that he has stated the premises—nay, he cannot be sure that he existed when the premises were stated" (Shallo p. 123).

Through immediate memory I am absolutely sure that my Ego is *one and permanent*. In spite of the incessant flow of experiences, I am conscious of the same Ego being their one and permanent subject. Experiences may overlap and vary; the Ego does not; it remains the same throughout.

Lastly, immediate memory supplies us with concrete examples of *change, succession, duration, time*. See Coffey, Epist. II p. 12-14.

2. *Memory proper*

a. Memory proper is the faculty of retaining past acts of ours (with their objects), of recalling them and recognizing them as past. Memory proper, therefore, involves three distinct elements: *retention, recall, recognition*. The last two clearly differentiate it from immediate memory. But even in the first element there is a difference; for in immediate memory the past act continues in consciousness, whereas in memory proper retention is unconscious.¹

b. Our main concern in epistemology is with recognition.

¹ How we *retain* an experience after it is past, is an obscure problem of psychology. Nor is the process of *recalling* much clearer, though we know that the laws of association have a good deal to do with it. See Gruender p. 186-195; Maher p. 179-207; Pyne p. 193-202.

When we recognize something as a past experience of ours, can we be sure of it? We answer: Yes, per se.

Generally speaking, "men have so much confidence in the power of the mind to recall a past mental image, and to identify its representative significance, that upon its testimony they are willing to pronounce a man a murderer and condemn him to death" (Pyne p. 202).—Moreover, we often test our memory and find it to agree with past facts; e.g. when I am away from home, I can recall the arrangement of the dining room, and on my return find that my memory was perfect.—A past act may identify itself as mine by its *details* (distinct memory).

c. As we said of immediate memory, also memory proper reveals the Ego as *one* and *permanent*. It even bridges over chasms of unconsciousness. I am absolutely sure that I am the same, ^{Ego} today as yesterday, although there was a complete break of several hours' duration in my consciousness. See Fröbes II p. 102-107.

Readings

Coffey, Ep. I p. 36-9, 283-7; II p. 1-10, 21-4; *Cunningham* p. 83-95; *Jouin* p. 50-3; *Lahr* I p. 50-8; *Rickaby* p. 340-365; *Sortais* I p. 137-155.

On consciousness in general: *Fröbes* I p. 2, 4-5, 20-5; *Gruender* p. 2-12; *Miller* p. 35-54.—On introspection: *Brennan*, p. 7-9, 23; *Maher* p. 20-5; *Rickaby* p. 81-3; *de la Vaissière* p. xlii-xliii.—On behaviorism: *R. K. Byrns*, in *America*, Febr. 27, 1932; *Bruckner*, in *The Modern Schoolman*, May 1932 p. 80-2.—On brain and consciousness: *Lindworsky* p. 208-215.—On memory: *Brennan* p. 240-260; *Fröbes* II p. 48-66, 124-162; *Rickaby* p. 366-376; *de la Vaissière* p. 108-142.—On personality: *Fröbes* II p. 99-124; *Lord* p. 36-43.—On the Ego: *Mahony*, *Cartesianism* p. 55-61.—On double personality: *Allers*, p. 16-21; *Thurston*, in *the Month* 1936 p. 336-346.

II. THE EXTERNAL SENSES

THESIS 5

✓ The world of bodies which we perceive with our senses, is real *and knowable to some extent.*

1. *Bodies.* For the purpose of our thesis, it is sufficient to define bodies as "*extended things*"; for although bodies manifest many other attributes (e.g. they are also heavy, colored, resisting), yet extension is the most common. But we are not now concerned with the ultimate nature of bodies; that is a special problem of cosmology.

Extension may be in one or two or three dimensions. We mean by 'bodies' three-dimensional things.

2. Real is that which exists or can exist independently of our cognition. We claim, of course, that the world of bodies exists actually.

Adversaries

Acosmistic idealism asserts that the world of bodies in which we live, is unreal or at least that bodies exist only as and when perceived. It is called 'idealism' because it teaches that bodies exist merely as known, as objects of cognition, as ideas.

Now, we certainly seem to perceive bodies all around us: men, trees, houses, horses etc. Moreover, some of them seem to us stationary, others appear to move; when we ride in a train, the landscape seems to change constantly; we visit certain places for their beauty; e.g. Niagara Falls.

These are facts, testified by our consciousness and admitted by idealists. Therefore idealists are obliged to assign a rea-

son why these things appear to us as they do; for idealists also *admit* the principle of sufficient reason ("whatever is, has a sufficient reason why it is so"). If this world of bodies is not real, then why do we see it as we do?

Acosmistic idealists differ in the answer which they give to this last question:

a. Subjective idealists (Neo-Platonists) maintain that we ourselves are the cause of all the phenomena described. This world is merely a dream of ours; it is no more real than are the things which we see in our dreams.

b. Objective idealists (Berkeley) claim that God Himself produces these phenomena in our soul, and that thereby we are led to believe in the existence of a bodily world.

c. Among modern English philosophers, there are many who deny the existence of an outer world: S. Alexander Laird, The "Neo-realists," the "objective Relativists" etc.

Proof of Thesis

1. In General

1. Whether immediately evident or not (see Schol.), the existence of three-dimensional bodies is so evident as to force our assent.

Now if such a conviction could be false, skepticism would necessarily follow; for we could no longer trust any other conviction.

Therefore the conviction of the existence of three-dimensional bodies cannot be false.

2. Our senses testify to the existence of an outer world.

Now their testimony is as good in their line as is that of consciousness in its line.

Therefore there exists an outer world.

Proof of major: a) By 'our senses' we mean not only

sight, but the most *varied* experience: the resistance which bodies offer, the pain or pleasure which bodies cause us, the necessity of choosing one body rather than another, the intellectual assistance we receive from other men etc. β) We must also remember that our senses *agree* in testifying to the existence of bodies. When I stub my toe against a stone while watching the first robin of the season, and when I then look down, I also see the stone, and I may pick it up and throw it off the road. γ) We can *repeat* our perceptions. Looking around this room, we see the same objects every day.

3. "It cannot but appear to the plain man little short of astounding that any thinking person should question the real existence of the material universe or our power to know that it does exist. So widespread, if not universal, is this belief that one can call it into question only under pain of bidding defiance to the accepted dictates of common sense" (Ryan p. 191).

Obj. If the existence of an outer world is so evident, how is it that there are so many *idealists* among philosophers?

A. We may give a twofold answer. a) The idealist, when forgetting his philosophy, feels the same instinct stir within him as the rest of us; if he were not inhibited by his *a priori reasons*, which he deems unanswerable, he, too, would agree with the layman, and so make the verdict unanimous. b) Idealists apply wrong *methods* to the problem: a) They isolate too much; they consider only one sense, viz. sight, whereas the world forces itself on us (and them) from all sides, day after day, under the most varied aspects; β) they consider primarily the physiological and psychological factors of perception, which are extremely obscure.

2. Against *Subjective Idealism*

If there were no world of bodies outside of us and we ourselves were the sole cause of our sense perceptions, then there would be no reason a) why a blind man should not be able to see things as well as we do, b) why all people agree in seeing

the same world, c) why we should not be able to perceive anything we wanted to perceive, d) why we should perceive anything we do not want to perceive.

Now there must be a reason for all these facts.

Therefore the world of bodies is real.

Obj. 1. There is no difference between the world we see in our *dreams*, and the world we see when awake. Now we are the sole cause of the world of our dreams. Therefore also of the world we see when awake.

A. Deny major. The world we see in our dreams, is unconnected, without order, irrational (see p. 134); not so the world we see when awake.—Besides, unless we had first perceived the actual world, we should have no dreams of a world of bodies—as the blind man who never saw any colors, does not dream of colors.

Obj. 2. At least, we cannot be sure that we ourselves are not the cause of the world we see, unless we know all our powers. Now we do not know all our powers.

A. Dist. major: unless we know all our powers negatively, *yes*; positively, *no*. Knowing our powers negatively means that we know that we cannot do certain things (e.g. jumping over the moon); knowing them positively means that we know what we can do (e.g. jumping over the fence).

Obj. 3. Sensations may be had without an external object. Astronomers tell us that *stars* which we now see in the nocturnal sky, may have been extinguished long ago; for it takes light hundreds and thousands of years to reach us, during which interval a star may have met with disaster. Also by the time I see a *lightning* at a distance, it certainly has already disappeared. Finally, physiologists tell us that once the external organ is stimulated, the sensory nerves do the rest *automatically* and independently of any object.

A. We may grant the facts mentioned, but we deny the idealistic conclusion. For in each case, there was an external object to start the process of perception.

3. Against *Objective Idealism*

If God produced the sense perceptions within us, He would positively lead us into error, and this error would be moreover invincible, cruel, pernicious.

Now it is against God's veracity, goodness, wisdom, holiness to lead us into such an error.

Therefore God does not produce the sense perceptions within us.

Proof of major: a) God would lead us into *error*; for He would lead us to judge that there is a world of bodies outside of us, although there would be none. b) God would not merely permit this error, but *positively* lead us into it; for there could be no other motive for God's action except to deceive us.—Moreover, this error would be a) *invincible*; for the sense perceptions are so regular, uniform and orderly that no one suspects them of being a sham; b) *cruel*; for on the existence of the world of bodies depends so much of our joy, hope, pleasure, which would all be vain if no world existed; c) *pernicious*; for there would then be no visible Church, no sacraments etc.

Obj. 1. In explaining facts, we must not assume more causes than are necessary ("entia non sunt multiplicanda sine necessitate"). Now, to explain our sense perceptions, it is sufficient to assume God's influence; for He can certainly produce them. Therefore there is no need of postulating a world of bodies as cause of our sense perceptions.

A. Grant major. Dist. minor: if God's power be considered absolutely, *transmit*; if God's power is considered as guided by His veracity, goodness, wisdom etc., *no*.

Obj. 2. God leads us into error in the Bl. Eucharist; for, to judge by our senses, there is bread and wine on the altar even after consecration. Therefore God can lead us into error also with regard to the world of bodies.

A. Deny antecedent. God does not lead us into error in the Bl. Eucharist. He works a miracle, but He also tells us in what the miracle consists, lest we be deceived.

Schol. 1. The argument against objective idealism supposes the *existence of God*, but only because the adversaries themselves suppose and grant it. But there is really no need of appealing to God in order to make sure that the world of bodies exists. Just open your eyes.

In this connection, three other theories must be mentioned:

a. *Descartes* admits the existence of the world of bodies, but thinks it incumbent on himself to *demonstrate* it.

To show the urgency of such demonstration, he conjures up a difficulty of his own making. Our sense perceptions, he muses, might be due to an evil genius, so that the whole outer world would merely be a "*diabolical illusion*." Then, in order to rid himself of this objection, he first proves God's existence and veracity, and thence concludes that our sense perceptions must be true.

But such demonstration is futile and abortive. a) If the devil can deceive me in my sense perceptions to the extent *Descartes* imagines, he may also mock me when I try to prove to myself the existence and veracity of God. Why not? b) The supposition that the world is merely a diabolical illusion, is utterly absurd and leads to skepticism.

b. *Malebranche*, another French philosopher, thinks we are sure that the world exists only because God has revealed it in *Holy Scripture*. For, there we read in the first book of Genesis: "God made heaven and earth."

Also this proof is abortive. For *Holy Scripture* is a book and therefore itself a *body*.

c. Lastly, we may mention Card. Mercier, who says: "It is impossible to affirm with certainty the existence of the external world without having recourse to the *principle of causality*" (Mercier-Parker I p. 381).

Though this opinion is also held by other Scholastics (Fröbes, de Vries, Sortais etc.), yet it does not seem true.

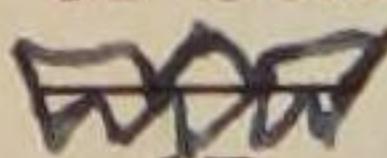
Speaking about cognition of the outer world, Aristotle says in his *Physics* (II ch. 1 n. 6): "It would be ridiculous to try to demonstrate that nature exists; its existence is only too obvious. And no one will prove the clear by the obscure, except he who cannot discriminate between what is and what is not known through itself."

That bodies are extended at least in two dimensions, is immediately evident from the senses of sight and touch (and from these alone); that they also have a third dimension, is learned gradually from experience. See Coffey, *Epist.* II p. 24-30; Rickaby p. 296-7.

Schol. 2. The "critical realists" (Drake, Lovejoy, Pratt, etc.) profess belief in an external world, but their arguments make its existence at most conjectural.¹

Readings

Coffey, Ep. II ch. 15; *Coppens* p. 77-81; *Cunningham* p. 96-103; *Lord* p. 14-20; *Maher* p. 108-123; *Gilson*, The Spirit of Mediæval Phil. ch. 12; *Mahony*, History of Modern Thought; *R. B. Perry*, Present Philosophical Tendencies p. 122-132; *Rickaby* p. 258-300; *Ryan* p. 66-71, 148-166; also in *The New Scholasticism* 1927 p. 244-258; *Sortais* II p. 497-501; *Wickham*, The Unrealists; *Sister M. Verda*, New Realism in the Light of Scholasticism.



¹ *Revue Néo-scolastique* 1936 p. 576-7, 580-2; ib. 1937 p. 574-593; *Revue de l'Université d'Ottawa* 1936 p. 102* sqq.

THESIS 6

Under normal conditions, our external senses are infallible with regard to the proper and common sensibles.

1. External Senses

a. The external senses are organic faculties by means of which we perceive the world of bodies around us. They are called '*external*,' because their organs are on the surface of our body, and because their primary purpose evidently is to inform us about bodies outside of us.

How many external senses we have, is immaterial now. As a rule 5 are enumerated: sight, hearing, taste, smell, touch.¹

b. Like consciousness, the senses do not judge; they merely apprehend. Nor do they perceive their object in the abstract, but in the concrete. Thus we never see color in general, but always this particular color. In other words, senses, like consciousness, *experience* their object (see p. 129).

The act by which senses apprehend their object, is called '*perception*' or '*sensation*.' Still, good usage distinguishes: sensation is the act as such, the proper object of consciousness; perception is the act insofar as it apprehends a real object.

2. Proper and Common Sensibles

Whatever can be perceived by a sense, is called by the Scholastics a '*sensible*'; today it is often called a '*sensum*'.

But Scholastics further distinguish between proper and common sensibles.

a. A *proper* sensible is a bodily attribute which can be

¹ See Fröbes, Psych. spec. I p. 106-108.

perceived by only one sense. The proper sensible for sight is light (or color), for hearing sound, for the sense of smell odors etc.

The proper sensible of each sense is also called its *formal object*, because the sense cannot perceive anything unless it contains the proper sensible; thus our ears cannot function where there is no sound.

There are, of course, as many proper sensibles and formal objects as there are senses.

b. A *common sensible* is a bodily attribute which can be perceived by more than one sense; e.g. extension, figure, size, motion.

Sense.
Object
Medium

The conditions under which our external senses are infallible, pertain partly to the subject, partly to the object, partly to the medium through which the object is perceived.

a. The *senses* themselves must be normal. If a sense organ is abnormal either permanently (e.g. through color-blindness) or temporarily (e.g. the eye after gazing at the sun), it is not reliable, and I must refrain from judging of the outer world in accordance with its testimony.¹

Also the sense *impression* must not be too brief, as happens e.g. in a fast moving train, in moving pictures etc.

b. The *object* must be proportionate to the sense. Thus for sight the object must neither be too small nor too far away nor too obscure. Our eyes are neither telescopes nor microscopes nor X-ray apparatus.

c. The *medium* (if there be any) must be normal; e.g. daylight for vision, air for hearing etc.

¹ "We can know from *experience* whether our senses are sound or not. If not sound, they are generally affected by pain. If the presence or absence of pain is no guide, we can compare present with past sensations, we can compare our sensations with those of others" (Jouin p. 55).

d. With regard to the common sensibles, a further condition is required, viz. that the object be examined by *all* the senses which can perceive it.

Adversaries

1. Descartes, Montaigne, de Lamennais profess to distrust our senses completely because we are so often *deceived* by them.

2. Kant denies that we can ever know what the bodies are, because we must perceive them *in space and time*, which, according to him, are purely subjective forms.

3. Some modern psychologists claim that we do not perceive the bodies themselves, but only the *differences* between them (laws of relativity and contrast). See Maher p. 90-2.

Meaning of Thesis

The thesis does not say that under abnormal conditions (e.g. in the dark room of the photographer) certitude can never be had; one defect may be compensated for by improving other conditions. The thesis is therefore positive.

Proof of Thesis

All our cognitive faculties are *per se* infallible with regard to those objects for which they were intended by nature.

Therefore under normal conditions, they must be actually infallible.

Now our external senses are cognitive faculties, and the objects of which they were intended by nature to inform us, are the proper and common sensibles.

Therefore under normal conditions, our external senses must be actually infallible with regard to the proper and common sensibles.

Proof of first conclusion: "Normal conditions" precisely means that everything is as it should be according to the in-

tention of nature. Now if an error could occur even so, the cognitive faculty would be useless.

Proof of minor:

- a. That our external senses are really *cognitive* faculties (i.e. given us by nature to apprehend things as they are), is the common belief of mankind; we all believe that we learn something about bodies by seeing them, touching them etc.
- b. The primary object for which the senses were evidently intended by nature, are the *proper* sensibles; for these cannot be perceived by any other sense.
- c. The secondary object for which the senses were intended by nature, are the *common* sensibles; for the perception of the proper sensibles varies with the common sensibles; a red circle looks different from a red square.

Objections

1. To the *colorblind*, red objects appear as grey.
 - A. Granted. But this is due to a defect of the organ; hence it is said to be "per accidens," i.e. not as intended by nature (see p. 122).
2. According to modern science, colors and sounds are nothing more than very fast vibrations of the ether or air. Now even under normal conditions, we do not perceive these vibrations, but something altogether *different*, viz. colors and sounds. Therefore even under normal conditions, our senses lead us astray.
 - A. See next thesis.
3. (Kant) Our senses always perceive things *in space and time*. Now space and time are purely subjective forms. Therefore we never perceive things as they are, nor can we ever know what they are.
 - A. *Grant major. Dist. minor:* if by space is meant extension and by time successive change, *no*; otherwise, *transit*. As a fact, Kant does mean by space the extension of bodies and by time their successive changes. See Ryan p. 196-7; Mercier-Parker I p. 381-3.
4. We see the *railroad tracks* converging at a distance, though in reality they are parallel; even after we have convinced ourselves that they are parallel, our eyes continue to see them as converging. The *stars* in the nocturnal sky look no farther away even when we are told that astronomers measure their distances in light years. Something similar happens when we hear sounds in accordance with *Doppler's principle*.

A. These facts concern the *common* sensibles. But a moderate experience soon convinces us that we must not be satisfied with the testimony of only one sense.

5. If I put my hand into icy water and then into tepid water, I feel the latter as very warm; but if I put my hand first into hot water, tepid water afterwards feels cold. Similarly, if I first look at a green surface and then at something greyish green, the grey stands out; but if I first look at a blue or grey, the green becomes accentuated.

A. How these facts are to be explained from the standpoint of physiology and psychology, lies beyond our province. As far as epistemology is concerned, the answer is simple: These perceptions are not had under normal conditions. Time should be allowed for the first sensation to *wear off*; the senses should be allowed to return to neutral. See Maher p. 90-2.

6. An oar dipped *slantwise* into water appears broken.

A. This pertains to the figure of the oar; but the figure of a body is a *common* sensible; hence to be sure of it, the body should be examined by more than one sense.

7. We see the sun even after it has actually *disappeared* below the horizon, and we still see stars in the sky which, according to astronomers, were extinguished long ago.

A. This refers to the *place* of a body; now the place of a body is neither a proper nor a common sensible.

Schol. Apperception.

Practically speaking there is no such thing as pure perception. Every perception, especially in grown-up persons is accompanied and surrounded by images, memories, habits, judgments, which *tend* to color and modify it. This is one meaning of apperception.

Nevertheless it is a fact that we can perceive things as they are. Only we must exercise *control* over our perceptions and beware of letting these subjective additions unduly influence our final judgment.

Readings

Coffey, Ep. II ch. 16, 21; *Coppens* p. 81-7; *Cunningham* p. 104-118; *Glenn*, Crit. p. 42-62, 187-206; *Jouin* p. 55-8.—On errors of the senses: *de la Vaissière* p. 143-158.—On Descartes' doubts: *Mahony*, Cartesianism.—On accurate measurements: *Coffey*, Log. II p. 201-5; *Joyce* p. 363-9.—On apperception: *Fröbes* I p. 441-6; *Maher* p. 357-360; *Miller* p. 184-6; *Pyne* p. 319-323.

THESIS 7

The proper sensibles, especially colors and sounds, exist formally outside of our perception.¹

1. Proper Sensibles

What the proper sensibles are, was explained in thesis 6. If we have 5 external senses (as is generally assumed), there are, of course, 5 proper sensibles.

However, in the present thesis we single out two, viz. *colors* and *sounds*. This for various reasons: a) very little is known even today of the others; b) colors and sounds, more than the others, appear to us to be real and to exist independently of our perception of them; c) the opponents of this thesis mass their attacks on these two.

2. Formally

This means that colors and sounds exist outside *as they are perceived* (of course, by the normal senses), not under some other form (e.g. merely as vibrations). Thus when my eyes perceive the rose as red, we claim that they do not make up the color or add anything to what exists independently of my perception, but that the red exists as such.

We do not touch the further question what is the physical or metaphysical *nature* of the proper sensibles; that pertains to the various sciences and to philosophy. Scientists claim today that colors and sounds are always accompanied by *vibrations* of some medium. If they can prove it, well and good; it does not conflict with our thesis. Similarly, it is the business of philosophers to find out under what *category* the proper sensibles are to be classified: whether they are substances or accidents, and if accidents, of what kind etc. We only prove that they are *real* beings, not mere fictions of the imagination.

¹A fuller discussion of this thesis may be read in the author's "Cosmologia."

3. Outside of Our Perception

This means that that which the normal sense perceives as objective, exists *independently* of the perception; hence it may exist as such even when nobody perceives it.

We do not touch the further question *where precisely* the proper sensibles exist. This question is freely discussed today by scientists. Briefly, with regard to colors the problem is this: Supposing that color is a modification of light, and light a modification of ether, where precisely is that modification of the ether which the eye perceives? Is it at the surface of the body which we call colored? Or is it at a certain distance from the eye? Or is it at the retina of the eye, as some assume? As is plain, any of these locations would be "outside and independent of my perception."

Adversaries:

The thesis is denied today by most scientists and by some philosophers, even Catholic.

According to these, colors and sounds exist merely *causally* or *fundamentally* outside of our perception, not as we perceive them. Colors, they say, are merely transverse vibrations of the ether; but when these vibrations strike my eye, I see color (just as I see colored stars when somebody hits my eye with the fist). Likewise, they say, sounds are merely longitudinal waves of the air; but on striking our ears, they are transformed into sound (just as one hears a noise when his ears are slapped).

The thesis is *highly probable*.

Proof of Thesis

1. Unless the proper sensibles existed formally outside of our perception, our external senses could not be called *cognitive faculties*.

Now our senses are cognitive faculties.

Therefore the proper sensibles exist formally outside of our perception.

Proof of major: Unless the proper sensibles existed formally outside of our perception, our senses would *per se* perceive their object other than it is. Now to perceive things other than they are, is not cognition, but an illusion. Therefore unless the proper sensibles existed formally outside of our perception, the senses could not rightly be called cognitive faculties.

Proof of minor: a) This is the common persuasion of mankind; hence it is to be retained unless convincing arguments to the contrary are forthcoming. b) All our intellectual cognition begins with sense perception ("nihil est in intellectu nisi quod prius fuerit in sensu"). Can we suppose that it begins with illusions? c) The adversaries admit that our senses are cognitive faculties with regard to the common sensibles. Then why not also with regard to the proper sensibles? Especially since we cannot perceive the common sensibles without first perceiving the proper sensibles.

2. Kant's theory of cognition is or leads to idealism.

Now the theory here rejected is implicitly the same as Kant's, at least as regards colors and sounds.

Therefore this theory, too, is or leads to idealism.

Proof of major: a) The major is admitted by all Catholic philosophers. b) According to Kant, our cognition positively changes the object by always adding something foreign to it, yet so that we cannot tell what in our cognition is due to the subject and what to the object. But this is or leads to idealism.

Proof of minor: According to the new theory, color consists in mere vibrations, mere locomotion, mere change of place. Yet we see something *altogether different*. Whence this something? Do we add it of our own? But then our senses positively change reality, and we have Kant's theory of cognition.

Objections

1. This whole question about the objectivity of colors etc. pertains to the natural sciences (physics, physiology, psychology), not to epistemology.

A. Dist. as far as the reality of colors etc. is concerned, *no*; where there is question of the proximate nature, *yes* (or *transmit*). The present question concerns the ultimate purpose of our senses; but the ultimate purpose of our faculties pertains to epistemology, not to the sciences.

2. The purpose of our external senses is *biological*; they have been given us by nature for the preservation of the individual and the race. But this purpose can be attained even if the proper sensibles do not exist as such outside of our perception.

A. Dist. major: is also biological, *yes*; is purely biological, *no*. In man (whatever may be said about brute animals), the external senses are *also* given by nature for the needs of the intellect, whose object is truth.

3. Physicists have proved by a thousand experiments that colors and sounds are merely *vibrations* of some medium.

A. Dist. they have proved that colors and sounds are always joined to vibrations of a definite kind, *transmit*; that they are nothing more than vibrations, *no*.

How, you ask, do we know that colors and sounds are *more* than vibrations? We answer: Because our eyes and ears tell us so.

4. The senses apprehend indeed the vibrations of the medium, but because these are so *rapid*, the senses cannot apprehend them as vibrations, but as colors and sounds (just as the eye sees the spokes of a rapidly revolving wheel as a continuum).

A. This is falsifying the object. The senses would thus be like a witness who cannot remember the facts, and therefore relates a story of his own invention.—The example of the wheel is not pertinent, because this happens only per accidens.

5. The eye sees colors also when it is struck by the fist, and the ear perceives sounds when it is slapped. Now there is no difference between these phenomena and our ordinary perceptions.

A. Transmit major. Dist. minor: there is no difference psychologically, *transmit*; from the standpoint of epistemology, *no*. Neither eyes nor ears are given us by nature to be punched and pommelled; therefore the facts cited are outside the purpose of the senses.

Schol. 1. Primary and Secondary Qualities

Instead of proper and common sensibles, it is more customary (since Locke) to speak of primary and secondary

qualities. The change is significant. What are called the primary qualities, are not the proper, but the common sensibles; the proper sensibles are called secondary qualities. The reason is precisely the error rejected in this thesis, viz. that only the *primary* qualities are real and objective.

There seems to be no reason for departing from the Scholastic view of sensible qualities, and hence it is also better to abide by their terminology. See Maher p. 152-162.

Schol. 2. Mathematical Physics

The supposition of this science (or rather method) is that the physical universe, in its entirety, submits to *measure and number*. Each natural body (*unum per se*) has indeed a definite composition, but its extension and motion can be measured and expressed by numbers.

Descartes was the first to insist on this idea, so that Meyerson has rightly called him "the legislator of modern science."

But Descartes was thereby led into two errors: he postulated mathematical evidence for everything (p. 234), and he concluded that bodies are nothing more than extension and motion.

Readings

Halpin, in The New Scholasticism 1936 p. 145-166.

III. INTELLECT

Under this head we shall discuss the validity a) of ideas and judgments in general, b) of universal ideas, c) of first principles.

THESIS 8

Ideas and judgments differ essentially from sense perceptions and images; yet they are *per se* objectively valid.

1. Ideas and Judgments

Lest the problem at issue might seem to be prejudged, we do not, in the beginning, define these terms except *nominally*. It seems preferable at the outset to give a complete *enumeration* of the things which we mean by them. By judgments then we mean acts of human cognition corresponding to propositions; by ideas we mean acts of cognition corresponding to words as parts of a proposition. That such cognitions differ essentially from all sense cognition, and that they correctly represent to us reality—is to be proved.

2. Sense Perceptions and Images

Nor do we strictly define these. But we mean by them: a) the simple perceptions of external senses, b) sense consciousness, c) the simple representations of imagination and memory, d) the more complex acts of the internal senses, such as the spontaneous completion, fusion, interpretation of both perceptions and images (see Miller p. 111-2).

3. Objective Validity

a. An idea is said to have objective validity (to be objectively valid) if something *real* corresponds to it, i.e. if that

which is conceived, is or can be something independently of the idea, or at least if there is a real foundation for the idea.

Thus, if I conceive 'house' as a 'structure fit to dwell in,' my concept is objectively valid; for there really are such things, whether I think of them or not. On the contrary, my dreams have no objective validity; nor have the fancies of poets (e.g. the gods and heroes of Homer); for nothing corresponds to them in reality.

b. Judgments are objectively valid (true) if they affirm what is and deny what is not.

4. *Per se*

a. We do not claim that all our ideas are objectively valid; to some nothing may correspond in reality. Nor do we speak of any ideas in particular. We only maintain that our ideas are *per se* objectively valid, i.e. the reason why we have ideas at all, is to know *reality* through them, to get in touch with reality. This is their *purpose*, even though it may at times be frustrated.

Our ideas result either by direct abstraction from the data of experience, or are the fruit of reasoning. The former are called "*primitive ideas*," and it is of these that we primarily speak in the thesis. That the latter, too, may have objective validity, will follow more particularly from the thesis on reasoning (thesis 12).

b. The same distinction applies to judgments as to the direct universal. *That which* the proposition expresses, is indeed outside of our cognition, but not the *manner* in which it is expressed. To explain. Outside of our cognition, S and P are identical, and this is what the proposition asserts. But owing to its imperfection, our mind must first separate S and P, and then join them again by means of the copula. This is the peculiar imperfection of the *human* mind; neither

God nor the angels go through such a process of cognition (see p. 125-6).

Adversaries

1. English *sensists* and *associationists* (John Locke, David Hume, John Stuart Mill, Bain etc.) deny that we have cognitions essentially different from sense perceptions and images. Some admit only two things in our conscious life: sensations and the laws of association; others admit besides emotions, affections, tendencies etc. as elements of our conscious life.

2. *Idealists* admit that we have ideas and judgments, but doubt or deny that these correctly represent to us reality.

a. *Kant*. Kant seems to admit that there are things existing independently of our cognition; he certainly admits that we have ideas. But he thinks that our mind is by nature equipped with "subjective forms," owing to which we always *add* something of our own to the thing known (just as one wearing blue glasses sees everything blue). Whence he concludes that we can never tell what or how things are in themselves (just as one wearing blue glasses could never tell what is the true color of a flower).

b. *Fichte, Schelling, Hegel*. Going beyond Kant, these German philosophers deny flatly that anything is real except our ideas, and hence that anything corresponds to them. According to them, our ideas are worth no more than dreams; our speech is the babble of dreamers.

Meaning of Thesis

The *first* part must not be understood to refer merely to some abstract order; we do not merely say that such things as ideas and judgments are possible or conceivable (or imaginable, if you will). We mean to say that we actually *have* cognitions as described.—On the other hand, we do not first prove that we have ideas and judgments, and then that they differ from sense cognition. We prove at once that, besides sense cognitions,

we have essentially *different* cognitions, which we call ideas (concepts) and judgments.

In the *second* part we prove that ideas and judgments, though different from all sense cognitions, yet are meant by nature to put us in touch with *reality*.

Proof of First Part

1. (As regards ideas)

a. Some of our cognitions have for their object a) our own Ego, b) universals, c) things abstract, d) things immaterial and spiritual.

Now such cognitions differ essentially from all sense cognitions.

Therefore some of our cognitions differ essentially from all sense cognitions.

Proof of major: a) We can and do say: I see, I think, I am etc. b) That we have universal cognitions will be proved in thesis 9. c) We know what we mean by wisdom, virtue, philosophy etc. d) God, as we understand Him, includes nothing corporeal.

Proof of minor: a) To say "I," the subject must become its own object; this implies *reflection* (*conscientia reflexa*). Now no sense can reflect on its own act; the eye sees other things, but it cannot see its own act, not even in a mirror. b) All sense perceptions and sensory images have for their object something singular and individual; I see this white lily, I hear this particular high C; consciousness reports to me only individual facts; nor do imagination and memory abstract from the individuality of the things represented; even what is called 'creative' imagination deals with objects in the concrete. Hence none of these objects can be predicated of many. Now universals can be predicated of many. c) and d) are self-evident.

Obj. Universal ideas do not differ much from so-called "composite images" and "typical images."

A. They differ essentially. a) The composite image of a cat cannot be identified with any particular cat, the idea of a cat can. b) The idea of a cat contains only the constituent notes; the composite image may contain many irrelevant features. c) The same reasons hold for typical images.

b. Modern experimental *psychologists*, applying various methods, invariably come to the conclusion that sense perceptions and images differ essentially from ideas.¹

Cor. Therefore *simple apprehension*, the act by which we acquire ideas, especially primitive ideas, is essentially different from any act of sense cognition.

2. (As regards judgments)

a. If we had nothing else than sensations (perceptions and images) and their associations, we should never have *insight* into the truth of a proposition.

Now the consequent is absurd.

Therefore also the antecedent.

Proof of major: Neither a sensation nor an association of sensations makes us *see* that a thing must be so. But insight means precisely this.

Proof of minor: It is absurd to say that we never see the necessity of a proposition and the impossibility of its contradictory. That would be tantamount to skepticism.

b. If we had no judgments essentially different from all sense cognition, our affirmative judgments and syllogisms would be *per se* false.

Now the consequent is absurd.

Therefore also the antecedent.

Proof of major: a) An affirmative judgment (A, I) asserts *identity* between S and P, which had been conceived

¹Commins, in *Thought* 1937 p. 115-131; Gruender p. 168, 182, 301-310, 332-345; Miller p. 193-204.

separately, i.e. by two distinct acts. Now the sense may superimpose, fuse, combine images, but it cannot identify things previously separated. b) The same line of reasoning applies to affirmative syllogisms (Barbara, Darii), which express identity between S, P and M.

Proof of minor: Most of our judgments and reasonings are affirmative. Now it would be absurd to say that all of them are of their very nature wrong. This would be but one step removed from skepticism.

Cor. Therefore we have not only senses (external and internal), but another faculty which differs essentially from them. It is called mind or *intellect*.¹

Proof of Second Part

1. Sometimes we are formally certain.

Now we could never be formally certain unless our ideas and judgments were *per se* objectively valid.

Therefore our ideas and judgments are *per se* objectively valid.

Proof of minor: a) Unless at least *some* of our ideas were objectively valid, all our judgments would clearly be valueless; for the judgment supposes ideas. But to say that all our judgments are valueless, is downright skepticism. Therefore, unless at least some of our ideas were objectively valid, we could never be formally certain. b) Unless our ideas were *per se* objectively valid, we could never know which are objectively valid and which are not; we might perhaps guess at it. But unless we know for sure that the ideas utilized in a definite judgment are objectively valid, the judgment itself

¹The English language has several synonyms for this faculty: intelligence, understanding, reason, judgment, sense etc. For literary (not philosophical) discrimination between them, see Standard Dict. s. v. Mind.

is not certain. c) If expressing our thoughts in sentence form were essentially wrong, skepticism would follow; for certitude is had only in sentence form.

2. A theory which makes no distinction between truth and error, between the real and the unreal, between fact and fancy—is absurd.

MINOR Now idealism is such a theory.

Therefore idealism is absurd.

Proof of minor: Idealism renders any such distinction meaningless; all our assertions might be called the one as well as the other; for there would be no objective standard to distinguish.

Schol. Idealism, as understood in epistemology, really takes its name from this that it places the idea as an *intermediary* (medium quod) between the object and the mind. According to idealists, we do not perceive the object itself, but merely the idea of the object (just as in dreams). Hence arises the necessity for idealists to inquire if the idea corresponds to the object; for the idea might possibly distort or misrepresent the object (as our dreams do). Idealists thus put themselves in the position of a man who sees a picture, but cannot tell whether it is a photo or the vagary of a jazz artist.

Scholastics, as a rule, hold that the idea is a *medium quo* or *in quo*. But this point is not insisted on here. Our proofs are independent of the (psychological) question what *kind* of medium the idea is.

Objections

1. Ideas are something *subjective* (within us). Therefore they can tell us nothing about reality.

A. *Dist. antec.* something purely subjective (like a toothache), *no*; something subjective whose purpose is to put us in touch with reality, *yes*.

2. All we know is our own ideas. Our mind can never go out of itself to see if things are as we conceive them (see above p. 123-4).

A. No. Our ideas are given us by nature that we may know reality in its various shapes. Nor is there need for the mind to 'go out of itself'; by *reflection* we are aware that our mind is of such a nature that we necessarily apprehend (at least in direct abstraction) things as they are.

To illustrate. Suppose a friend of yours sends you a photo of St. Peter's at Rome. You are sure that St. Peter's looks like the photo; you need not go to Rome to be sure of it; you know that photos must, owing to physical laws, represent things as they are. Similarly reflection tells us that it is the law of our intellect to mirror reality (see p. 125).

3. To make sure that our ideas are objectively valid, we ought to *compare* them with the things they represent. Now such comparison is evidently impossible.

A. *Deny major.* Because we know the nature of cameras, we are sure that the reality is as the photo shows it to be; we do not have to compare photo and reality.

Every judgment logically supposes a comparison between S and P (see p. 11). But idealists talk about another comparison, viz. between the judgment itself and reality. To compare these directly (as we would a bungalow with its picture in the advertisement), is clearly impossible; we should need a faculty above the intellect. But we can and do compare them *virtually*, viz. by reflecting on the nature of our mind (see p. 127-8).

Readings

On the difference between phantasm and idea: *Clarke* ch. 6; *Joyce* p. 15-7; *Coffey*, Log. I p. 2-5.—On English sensists: *Fröbes* I p. 417, 424, 609; *V. M. Hamm*, in *Thought*, Dec. 1936 p. 378-391.—On composite and typical images: *Gruender* p. 345-8; *Miller* p. 183-5.—On idealism: *Mahony*, Cart. p. 73-9; *Glenn*, Crit. p. 63-90, 211-222; *Cath. Encycl.* s. v. Idealism; *Rickaby* p. 301-314.

important

THESIS 9

Universals are neither mere words, nor mere figments of the mind, nor yet do they ^{formally} exist as such outside of our mind.

1. Universals

In thesis 8 we defended the objective validity of ideas or concepts in general. But universal ideas, owing to their special nature, call for special treatment. Hence in this and the next thesis we shall discuss the objective validity of universal ideas.

It is customary, however, to speak of *universals* rather than of universal ideas. The reason is methodological. As we shall see presently, some philosophers deny that there are universal ideas, admitting only 'common terms.' Hence prior to proving the existence of universal ideas, we use the term 'universal' *vaguely* as "one thing which can be predicated of many"—whether it be now a word or an idea.

2. The Problem of Universals

That we have and constantly use common terms, no one denies. They make up by far the greater part of our vocabulary, as any dictionary shows.

But what is their meaning? What corresponds to them independently of our speech? Above all, have we also universal concepts? And if so, are they, too, objectively valid and how far?

Needless to say, the problem is not concerned with any universals or universal concepts in particular. We speak of the universals *as such*, though of both direct and reflex universals.

3. Three Wrong Solutions

a. *Nominalists* hold that universals are *mere words* and can be no more. They admit, of course, the existence of common terms, but they deny flatly that there are corresponding universal concepts in our mind or that things themselves are in any sense universal.

Nominalism is widespread today, especially among English-speaking philosophers.

b. *Conceptualism* is less radical. Conceptualists admit that we have and use common terms; they also admit that we have corresponding universal ideas. But they deny that universal concepts have any objective validity. To them universal ideas are mere fictions or *figments of the mind*.

The principal conceptualist of our times is *Kant*. According to him, universality is one of those "subjective forms" (categories) which the mind adds to the data of the senses, though there is no objective reason for it.

c. *Exaggerated realism* insists strongly that we have universal ideas and that they are objectively valid. But it exaggerates this validity. According to it, things themselves are full-fledged universals.

But when asked where and how universal things exist, the advocates of this theory differ in their answer: a) According to *Plato*, the universals exist in some "heavenly place," while the objects which we see around us, are merely imitations of them. b) *William of Champeaux* (12th century) taught that the universals exist in each individual, so that e.g. Peter would be made up of a universal man plus an individuality of his own.

With regard to *predicables*: According to some philosophers, who are both rationalists and idealists (Parmenides, Plotinus, Hegel), the conceptual order is not merely based on the real order, but identical with it; our *predicables* and

Porphyrian Trees are perfect parallels of reality; "cogitari est esse."¹

Proof of Thesis

1. Against Nominalism

a. If we had no universal concepts, we should have no common terms.

Now we have common terms (e.g. man, horse, flower—in fact, most of the words in any language are common terms).

Therefore we also have universal concepts.

Proof of major: Terms and words are natural signs of our thoughts, and as our thoughts, so our speech. Therefore, if all our concepts were singular, all our terms should be proper (like Julius Cæsar).

b. If the reflex universals (e.g. genus, species, class) were mere words, science and philosophy would at most be a well-constructed language.

Now the consequent would be the death-knell of both science and philosophy.

Therefore also the antecedent.

Obj. 1. Whatever exists by itself, is singular. Now all our concepts exist by themselves. Therefore they are all singular.

A. Grant major. Dist. minor: our concepts considered subjectively, yes; objectively, no.

Obj. 2. There is nothing in the intellect except what was in the senses (see p. 13). Now in the senses there is nothing universal; for the senses experience only the singular (see p. 129, 145). Therefore there is nothing universal in the intellect.

A. Dist. major: except what was in the senses in the same way, no; in some way, yes.

2. Against Conceptualism

If our universal concepts were mere figments of the mind, a) our logical judgments would be per se false, b) science and philosophy would be without value.

¹See Klimke I p. 22, 70; II p. 55; Coffey, Log. I p. 147; II p. 241-3.

Now the consequent cannot be admitted.

Therefore neither the antecedent.

Proof of major: a) A logical judgment is one whose predicate is a universal (e.g. Peter is a man). Now if direct universals were mere figments, I would say that I conceive Peter as a man, but whether or no he is a man, I have no means of telling. b) The ultimate purpose of both science and philosophy is the construction of predicamental trees, which are based on reflex universals; therefore, if the reflex universals are pure fictions, so is science and philosophy.

Cor. Therefore our universal concepts (direct and reflex) must have some objective validity.

Obj. There is nothing that could be both one and many. Now if reality corresponded to our universal concepts, it would have to be both one and many. Therefore nothing corresponds to our universal concepts.

A. Dist. major: under the same aspect, yes; under different aspects no. The unity of the universal is logical, the multiplicity is real.

3. *Against Exaggerated Realism*

Nothing that exists by itself (i.e. independently of our cognition), can be both one and many under the same aspect.

Now if universals existed as such, they would have to be both one and many under the same aspect; for the universal is "one in many," i.e. one identified with many.

Therefore universals cannot exist as such by themselves.

Proof of major: Whatever exists by itself, is individual, i.e. divided from everything else.

Obj. Our universal concepts are objectively valid. Now they would not be objectively valid, unless universals existed as such outside of our cognition.

A. Grant major. Deny minor. The positive solution of this difficulty is to be found in the next thesis.

Readings

Coffey, Log. I p. 6-11; Ep. ch. 10-12; *Joyce* p. 132-5; *Mercier-Parker* II p. 382-3, 386-8; *Rickaby* p. 332-9; *Varvello* p. 122-6; *de Wulf*, History of Medieval Phil. I p. 100-115.

THESIS 10

That which we conceive by the direct universal concept, is real, though not in the manner in which we conceive it. The reflex universal concepts, however, are figments of the mind, though they, too, are based on reality.

The solution of the problem of universals which is here offered, is called *moderate realism*, and represents the *common* teaching of Scholastics. It is the only solution that does not lead us into absurdities.

As is clear from the wording of the thesis, we do not claim the same objective validity for all our universal concepts, but distinguish sharply between direct and reflex universals.

a. As regards the direct universal, we distinguish between *that which* we conceive, and the *manner* in which it is conceived. And we claim that *that which* is thus conceived by the mind, exists or can exist independently of our concept; but we deny that it can exist as it is conceived, i.e. without any individuality.

b. As regards the reflex universal, we grant that even *that which* is conceived, is a figment of the mind, and that therefore nothing corresponds to it in reality. Nevertheless, we claim that there is something in the things themselves which gives us the right to construct such figments. This is meant by saying that the reflex universal concepts are based on reality, have a *foundation* in reality.

Proof of First Part

a. If *that which* we conceive by our direct universal concepts, were not real, our logical judgments would be *per se false*.

MINOR CONCLUSION Now our logical judgments cannot be *per se* false. Therefore that which we conceive by our direct universal concepts, must be real.

Proof of major: A logical judgment is one whose predicate is a direct universal (e.g. Peter is a man, Fido is a dog, the lily is a flower). Now unless that which is conceived in the predicate, were real, it could not be *identified* with a real subject; yet this is done in every logical judgment; for the copula 'is' expresses identity.

b. The direct universal is conceived so as to omit individuality; else it could not be predicated of many.

Now nothing can exist without some individuality.

Therefore the *manner* in which the direct universal is conceived, is not real.

Proof of major: Thus if I know what the word 'man' means, I conceive 'rational animal.' But this concept omits the individuality of the single men existing or possible; it says nothing e.g. about Peter's height, weight, age, parents etc.; nor does it say anything about Paul's height, weight etc. But these are the things precisely which constitute their individuality; by them we distinguish one man from another.

Cor. 1. Therefore the manner in which things are in the mind, *differs* from the manner in which things are in themselves. In themselves, all things, existing or possible, have their own individuality; but the mind, when conceiving them, omits this entirely.

An objection might be raised against this explanation. For if it were true, then our mind would not represent things as they are. But to represent things *otherwise* than they are, is to falsify them, to err (see p. 121).

We distinguish the major: *that which* we conceive, differs from what things are, *no*; the mind does not represent things *completely*, i.e. so as to omit nothing, *yes*. There is then difformity between mind and object; but this difformity is merely negative. Error lies in positive difformity (see p. 244).

Therefore there is a vast gulf between our position and that of *Kant*, according to whom our mind always *adds* something of its own. See Coffey, Epist. II p. 228-232.

Cor. 2. Therefore we have the power of intellectual *abstraction*, i.e. the power of conceiving something without its individuality.

Obj. Berkeley: "Whether others have this wonderful faculty of abstracting their ideas, they best can tell; for myself I dare to be confident I have it not."

A. The good bishop also had this "wonderful faculty," whether he realized it or not. The many *common* terms occurring in his books prove it.

Schol. 1. It is a question of words whether we should call the direct universal a real being or a figment of the mind. According to our thesis, both reality and the operation of the intellect concur in its formation. But as a universal it can only exist in the mind.

Schol. 2. Origin of Universal Ideas

A further question, not without its interest, is how direct universal ideas come about, or in what *abstraction* consists. Now, as ideas themselves, so abstraction, too, may be considered objectively and subjectively. A few remarks on both aspects must suffice.

a. Considered *objectively*, abstraction may be explained in two ways. The intellect may conceive the universal without first knowing the individual as such, or it may first know the individual and then, by gradually eliminating all individuality, arrive at the universal concept.

Following St. Thomas, Scholastics more commonly explain the origin of ideas by the former method. But some (e.g. Suarez) claim that all our ideas are originally singular, and that universal ideas are arrived at only by formally comparing individuals (i.e. by noting their likeness and unlikeness).

b. This difference of opinion appears again when psycholo-

gists, considering abstraction *subjectively*, try to explain the various *acts* comprised in abstraction.¹

c. The two views may be reconciled by saying that the so-called *primitive* ideas originate in the first manner, all others in the second. We abstract immediately such notions as being, existence, quantity, cause, motion etc., but many individuals have to be observed and compared before we have the essential definition of iron, horse, oak, man etc.

Proof of Second Part

a. A figment of the mind is something which cannot exist except objectively in the mind (as object of the mind).

Now *that which* we conceive by the reflex universals, exists indeed objectively in the mind, but cannot exist otherwise.

Therefore the reflex universals are figments of the mind.

Proof of minor: That which we conceive by the reflex universals, is 'one as common to many' (see p. 58). Now one as common to many cannot possibly exist outside of the act of cognition; for only what is individual, can exist by itself.

b. The reflex universals are based on reality, if reality offers us a *reason* why we conceive one as common to many.

Now reality offers us such a reason.

Therefore the reflex universals are based on reality.

Proof of minor: This objective reason is the *likeness* and *unlikeness* which actually exists between the natures of individuals. Thus Peter and Paul are like each other inasmuch as both are rational animals; they are unlike each other as regards age, size, weight etc. Men and horses are like each

¹This uncertainty, however, does not react on our thesis. Even though we may be ignorant of the origin of a thing, we may be sure of many others of its attributes.

other inasmuch as both are animals; they differ inasmuch as only men are rational.

Cor. 1. Therefore *predicables* have a foundation in reality, though in themselves they are figments of the human mind.

Cor. 2. Therefore the *Porphyrian Tree*, too, is a figment of the human mind. That it is based on reality, is shown in other parts of philosophy.

Cor. 3. Therefore we have the power of *systematizing*, that is, of constructing an orderly whole by coordinating and subordinating ideas (see p. 56, 57).

Cor. 4. Therefore the ultimate goal of all knowledge, which is the *system* (*scientia*), is possible.

Readings

Cath. Encycl. s. v. *Universals*; *Coffey*, Ep. ch. 9; *Coppens* p. 117-9; *Joyce* p. 132-5; *Mercier-Parker* I p. 377-384; *Rickaby* p. 314-331; *Shallo* p. 117-120; *Varvello* p. 126-132.—On abstraction: *Gruender*, ch. 14; *Maher* p. 293-302; *Pyne* p. 267-279.

*revised
and
written in
note book.* The fundamental principles of reasoning are analytic, objectively valid and absolutely certain.

THESIS 11

Very Important.

There are immediate analytic principles, which have objective validity and are absolutely necessary.

1. Immediate Analytic Principles

to 3/30/43. a. A principle is a universal proposition, that is, a proposition whose subject (S) is a universal term used distributively. It may be affirmative (e.g. man is mortal) or negative (e.g. man is not a mere brute).

The reason why universal propositions are called principles, is because from them other truths may be *derived* by inference. But this point is not insisted on here. Still, the thesis refers to both the formal and the material principles of argumentation.

b. Nowadays, principles are divided into analytic and synthetic.

An *analytic* principle is one in which the motive of assent lies in the abstract concepts themselves, inasmuch as a mere consideration of them is sufficient to furnish the evidence for their truth. Thus when considering the relation between the abstract concepts of 'whole' and 'part,' I see that the whole is bigger than its part. The motive of assent here is not experience, not because I have seen this relation verified in a number of instances; but the abstract notions themselves furnish me with the necessary evidence.

Synthetic principles are those in which experience is partly the motive of assent; e.g. iron sinks in water.

c. *Immediate* principles are those which need no demonstration to make their truth manifest to us. Like the sun, they bear their light within themselves and need no illumination from without.

Mediate principles are those which require demonstration ; e.g. many theorems in geometry.

An analytic principle may be immediate or mediate ; synthetic principles are always mediate.

2. Objective Validity

Objectively valid are those principles to which things outside of our cognition correspond. Thus if the principle 'man is mortal' has objective validity, then all individual men are and must be mortal.

3. Necessity

Absolutely necessary are those principles to which things correspond under all circumstances, so that no exception is possible.—Other principles are only *hypothetically* necessary ; e.g. iron necessarily sinks in water ; but God may work a miracle and not allow it to sink.

Adversaries:

1. Modern *positivists* (Aug. Comte, Taine, John Stuart Mill) deny that there are any analytic principles, or at least that their necessity is absolute. John Stuart Mill denies even the absolute necessity of mathematical axioms (arithmetic, algebra, geometry etc.) According to him, such principles are derived from constant experience ; their necessity is psychological. He also thinks that we adhere to the principle of contradiction because no case has ever come to our notice where two contradictories were simultaneously true. Cf. Rickaby p. 73-81.

2. *Kant* does not deny that we formulate, nay must formulate principles which appear absolutely necessary ; but according to him, they are mere *laws of thought* (i.e. we cannot think of things otherwise), not *laws of being* (i.e. that things must be as the principles say). Thus Kant would say that we

cannot judge otherwise than that the whole is and must be bigger than any of its parts, but that we cannot say if this is invariably so in reality.

3. According to *evolutionists* (H. Spencer), first principles are now laws of thought, but only on account of the past experience of the human race.

Meaning of Thesis:

1. We do not speak of any analytic principles in particular, but merely show that there must be *some*. In other parts of philosophy, we shall show that certain principles are really analytic (and immediate) ; e.g. the principle of contradiction, of identity, of excluded middle, of sufficient reason, of substance, of causality, of finality etc. An important principle is the "aptitude of the mind," which is affirmed (and therefore first known) in every judgment. Most, if not all, mathematical axioms are analytic. *my own evidence*

2. Beware of confounding first principles (or true principles in general) with common or pithy sayings, with practical maxims or proverbs, with political slogans or the *ipse dixit* of some professor. The latter may be commonly or often true, the former are always and universally true. Unfortunately, even Card. Newman is guilty of such confusion in his Grammar of Assent, when he puts down as a universal principle the common saying "Every man has his price."

3. The thesis is most fundamental in scholastic philosophy. It is, of course, incapable of strict proof, but it may be brought home to the skeptic in various ways ; e.g. by pointing to children who always ask why, and with whom one may even reason, showing that they are convinced of the universality of certain principles. Even adversaries admit it in unguarded moments (cf. Rickaby p. 83-8). A man who

would flout these first principles either in his daily life or in his speech, would be judged crazy. Our proofs bring out the connection with other theses.

Proof of First Part

1. If there were no immediate analytic principles, there would be no formal certitude. *There are immediate analytic principles.*

Now there is formal certitude. *✓*

Therefore there are immediate analytic principles.

Proof of major: a) To be formally certain, I must see that the thing is so and cannot be otherwise. But this is impossible unless the principle of contradiction holds, viz. that a thing cannot be and not be at the same time. b) We are only certain because we can rely on the aptitude of our mind to know reality.

2. There are principles.

Now there could be no principles, unless there were immediate analytic principles.

Therefore there are immediate analytic principles.

Proof of major: If there were no principles, all our propositions would be singular; but they are not.—Modern scientists admit at least synthetic principles. *✓*

Proof of minor: a) If there were no analytic principles, all principles would be synthetic; but synthetic principles have no necessity except in so far as they are based on analytic principles (as will appear from the next thesis). b) If there were no immediate principles, all principles would require demonstration; but not all can be demonstrated; for demonstration itself supposes principles (see p. 68).

3. Mathematical propositions are universal. In geometry, what holds of one, holds of all (ex uno disce omnes).

Now mathematical propositions are either self-evident (immediate) or deduced from such (mediate).

But they cannot all be deduced from others.

Therefore there are first self-evident mathematical propositions.

Cor. Therefore it is unwise to try to *demonstrate* all analytical principles. Such attempts can have only one result, viz. to render obscure what is clear (like looking at your room through a telescope).

Obj. Principles derived from *experience* are not analytic. Now all principles are derived from experience; for nothing is in the intellect except what was in the senses. Therefore there are no analytic principles.

A. Dist. major: if experience is partly the motive of assent, *yes*; if experience is merely the *occasion* for formulating the principle, *no*.

Proof of Second Part

Unless the first principles were objectively valid, also the certitude based on them and the conclusions drawn from them would be null and void.

But this consequent is tantamount to skepticism.

Therefore also the antecedent.

Cor. Therefore our analytic principles are not merely laws of thought, but also laws of being. In fact, they are laws of thought *because* they are laws of being; for our mind, while imperfect, is *made to know reality* (being).

Proof of Third Part

Those principles which flow from the essences of things, are absolutely necessary (like the essences themselves).

Now immediate analytic principles flow from the essences of things.

Therefore they are absolutely necessary.

Proof of minor: Abstract notions express only what pertains to the essences of things; else they are not strictly universal. But immediate analytic principles are derived from abstract notions.

Cor. 1. Therefore, we may also be sure of *negative universals*, that is, that some things will never come to pass. Thus we are sure that no circle will ever be square; for we clearly see that the notes of these two figures are absolutely incompatible.

Cor. 2. Therefore there is in us a power by which some universal principles, common to all knowledge, are known without strict proof. This power is called by Scholastics "*lumen rationis*," "*intellectus principiorum*," "*intellectus agens*."¹

Cor. 3. Therefore *metaphysics* is possible.

Schol. 1. First principles as defined above are self-evident and absolutely certain. Their number is by no means small.

However, one must beware of thinking that all abstract statements are *eo ipso* self-evident. Some are only *probable*, others *false*.—Another error would be to erect one such probable or false statement into a first principle, and to build on it a whole *system* (as evolutionists are doing). It would be the fallacy known as "undue assumption of axioms."

Schol. 2. There are also first principles of *method*; e.g. every good method proceeds from what is known to what is unknown, from what is clear to what is obscure, from what is certain to what is not; "*contra factum non valet argumentatio*"; the imperfect is to be judged by the perfect, not vice versa; "*entia non sunt multiplicanda sine ratione*," i.e. one must not assume more or higher causes than are necessary for

¹See St. Thomas, *Summa theol.* I qu. 117 a. 1.—According to Hoenen (*Gregorianum*, April 1933 p. 153-184), St. Thomas also teaches that the *intellectus agens* must abstract first principles *directly* from experience, just as it abstracts primitive ideas.—Compare Newman's "illative sense," on which see *The New Scholasticism* 1932 p. 53-5.

an adequate explanation etc. See Newton's Rules of Philosophizing, in Joyce p. 348-353.)))))

Readings

Coffey, Log. I p. 23-8, 170-180; II p. 10-13; Ep. ch. 5-8; *Coppens* p. 70-2; *Cunningham* p. 119-124; *Jouin* p. 47-9; *Joyce* p. 51-5, 67-76, 398-405; *Mercier-Parker* I p. 368-376, 386-8; *Rickaby* p. 68-107; *Shallo* p. 121-2.—On the undue assumption of axioms: *Coffey*, Log. II p. 322-7; *Joyce* p. 278.

Important

IV. REASON

THESIS 12

*Refer to pages 47-54
(dialectics)*

Under certain conditions, not only deduction, but also induction and the cumulative argument lead to formal certitude.

Generally speaking, reasoning or inference is the mental transition from the known to the unknown. That is, from propositions which we know to be true, we pass to another which we had not known to be true, but which we now see to be also true, viz. on account of its *connection* with the former (see p. 30, 37). Because most of our knowledge is acquired by reasoning, not by intuition, man is called a *rational*, not an *intellectual* animal.

There are three processes of reasoning or methods of passing from the known to the unknown. In *deduction* we pass from a strictly universal proposition to another equally universal or to a particular. This is the syllogism, which may be categorical or hypothetical. We speak of both.—In *induction* we pass from some particular propositions to one that is strictly universal. Induction may be complete or incomplete; we speak chiefly of *incomplete* induction (see p. 47).—In the *cumulative argument* we pass from some particular propositions to one that is again particular (see p. 53).

Conditions of Certitude:

The conditions under which the conclusions reached by these three processes are formally certain, vary with the process employed:

1. For *deductive* reasoning two conditions are required:

a) the *premises* must be certain ; b) the *form* must be correct, i.e. none of the rules laid down for the syllogism (categorical or hypothetical) must be violated.

2. For *inductive* reasoning only one condition is necessary, viz. the induction must be *perfect*. That is to say, it must be shown that neither external circumstances nor internal (logical) accidents can account for the facts observed. When this has been done, induction, even though incomplete, is called perfect; else it is imperfect.

3. To arrive at formal certitude through a cumulative argument, two conditions are necessary: a) the single items must be *independent* of one another (e.g. there must be no collusion between witnesses) ; b) they must all point to the *same* fact as their explanation. Hence the argument is also called "from converging probabilities."

Adversaries

1. *Positivists* claim that the *categorical* syllogism is useless, because the major, being a universal proposition, already contains the conclusion, and could not be known to be true unless the conclusion, too, were known to be true.

2. Positivists also claim that *induction* never leads to formal certitude, but at most to a high degree of probability. They think that the sole ground for generalization are repeated observations and experiments.

The logicians of *Port Royal* likened induction to the argument from analogy, whereas some English logicians grounded it on an argument from hypothesis ("hypothetical deduction"); therefore neither granted induction more than probability. See Lahr I p. 609; Joyce p. 341-4.

3. According to *Scotus*, the possibles (essences, properties, laws) and hence the uniformity of nature have their ultimate

foundation in God's free will. If this were so, induction could never lead us to strict universals.

Proof of First Part

Observe. There is natural reasoning and scientific reasoning, natural logic and scientific logic. That *natural* reasoning is *per se* an infallible method of arriving at the truth, cannot and need not be proved. We use this method every day; both scientists and philosophers rely on it in their lectures and books; even children at an early age will reason correctly and be sure of their conclusion. But we now explicitly defend the validity of *scientific* deduction, that is, the syllogism and the rules laid down for it in scholastic logic (Barbara, Celarent, Darii, Ferio).

If, supposing the premises to be certain, a correct deductive syllogism could lead to a false conclusion, its formal principles could be false.

Now the formal principles of the deductive syllogism are absolutely certain.

Therefore, supposing the premises to be certain, a correct deductive syllogism cannot lead to a false conclusion.

Proof of major: A deductive syllogism is correct if the rules of the syllogism are observed. Now the rules of the syllogism are nothing else than an application of the formal principles of the syllogism: the principle of identity in categorical syllogisms, and the principle of sufficient reason for hypothetical syllogisms. Therefore if a correct syllogism could lead to a false conclusion, its formal principles could be false.

Proof of minor: Both the principle of identity and that of sufficient reason are analytic and immediately evident.

Cor. Therefore also *negative universals* (Celarent) can be proved.

Obj. 1. (John Stuart Mill) The major, being a universal proposition, necessarily supposes the conclusion to be true and known as true. Therefore the deductive syllogism is *useless*.

A. Dist. antec. to be true, *yes*; to be known as true, *subdist.* virtually, *yes*; formally, *no*.

Take an ordinary example: Man is mortal; Laban is a man; therefore Laban is mortal. Of course, if in reality Laban were not mortal, the major would not stand. Moreover, when I assert the major, I implicitly assert that Laban, too, is mortal; I also know this *virtually*, inasmuch as, with the aid of the minor, I can arrive at the conclusion. But I cannot know the conclusion *formally* without this aid; Laban might be the name of an archangel or of a constellation in the heavens or of a chemical element.

The same objection is sometimes urged differently. The deductive syllogism, it is said, teaches us nothing *new*, and is therefore *useless*.

There is some truth in this contention. The main purpose of the deductive syllogism is not to discover new planets or new ways of preparing breakfast, but to bring *order* and *system* into our knowledge. Now is not this also something new? Nay, is it not far more important than a thousand patents secured from Washington? The Summa of St. Thomas is still hailed as the work of a genius. Not because it added to the sum of positive knowledge, but because it organized into a well-rounded whole the truths already known. The world today would acclaim as a genius the man who could change our encyclopedias into one grand Summa. Even Will Durant sees the desirability of such a unifying philosophy (Story of Philosophy p. 102).

Obj. 2. F. C. S. Schiller argues that the middle term is always ambiguous, that is, used in two senses, and that therefore every syllogism has *4 terms*.

A. a) This would be intellectual dishonesty in every one who reasons deductively. *b)* If it were so, either the major or the minor would be false.

Obj. 3. The same logician also argues that there is an *infinite regress* in every syllogism, inasmuch as each premise must be proved by a syllogism, and the premises of these new syllogisms must again be proved etc.

A. There are first self-evident truths, both universal and particular, which need not and cannot be proved, at least not by a direct syllogism.

Obj. 4. History tells us that syllogisms have led to many errors, and that all heretics use syllogisms to bolster up their doctrines. Will Durant (ib. p. 222) says of Voltaire: "His later educators, the Jesuits, gave him the very instrument of skepticism, by teaching him dialectic—the art of proving anything, and therefore at last the habit of believing nothing."

A. Dist. syllogisms in which the premises were certain and the form correct, *no*; other syllogisms, *transmit*.

SCHOL. PROBABLE ARGUMENTS

The probable argument is one, the premises of which are only probable, not certain. Either the major may be probable or the minor or both; in any case, the conclusion does not exceed probability.

In a special sense, however, a probable argument is one in which the *major*, though a universal proposition, is only probable. Such principles are particularly two:

a. The principle of the *argument from analogy*: "What is true of one, is true of others similar to it." Or also: "A thing which is similar to another in one respect, is similar to it also in other respects." Or again: "Similar causes produce similar effects" etc. Thus one may argue: The planet Mars resembles the earth in size, rotation, revolution, the presence of an atmosphere. Therefore Mars is inhabited like the earth. If, however, the missing major is supplied, it will be seen to be at most probable.

b. The principle of the *argument from a hypothesis*: "What conveniently explains all phenomena of a given class, is their true cause" (see p. 50-51).

Proof of Second Part

An attribute which is always present in an object, no matter how external circumstances and internal (logical) accidents vary, a) pertains to the *essence* (nature) of that same object, and consequently b) *all* objects having that same essence must also have this attribute.

Now attribute A is always present in B, no matter how external circumstances and internal accidents may vary.

Therefore attribute A pertains to the essence of B, and all objects having the same essence as B, *must* have attribute A.

Proof of major: The major is an analytic proposition and may be shown thus: a) There must be a *sufficient reason* why

a certain attribute is always present in an object. Now, apart from external circumstances and internal accidents, there can be no other reason than the *essence* of the object. b) The essences of things are *unchangeable*. Therefore also the attributes which flow from them. Therefore all objects having the same essence, *must* have the same attributes (properties).

Proof of minor: The minor must be proved, in each particular case, by means of *observations* and *experiments*. How many of these must be made, or how much external circumstances and internal accidents must be varied before the minor can be called certain, cannot be determined *a priori*; a good deal depends on the genius of the experimenter.

Cor. 1. Therefore it is possible to establish *synthetic* principles (laws and definitions of natural objects).

Concerning these principles two remarks are in order:

a. Modern positivists deny the *objective validity* of physical laws. D. S. Robinson (Principles of Reasoning p. 294) quotes Karl Pearson as saying: "A scientific law is the résumé or brief expression of the relationships and sequences of certain groups of perceptions and conceptions, and exists only when formulated by man."

b. Like immediate principles or conclusions of deductive syllogisms, synthetic principles may also be *negative* (e.g. no horse is endowed with reason; spontaneous generation is impossible). But just as every syllogism must contain at least one affirmative premise, so a negative synthetic principle must rest on positive facts.

Cor. 2. Therefore the *uniformity of nature*, to which English positivists reduce everything, must itself be reduced to the essences of things. Nature is uniform a) because the essences of things always remain the same, and b) because

“agere sequitur esse.” Hence if the concept of essence (substance, nature) is ignored or emasculated, uniformity becomes an enigma, an effect without a cause.

On the other hand, we admit with Scotus that the uniformity of nature also depends on God's free will. And this not only inasmuch as God was free to create this world, but also because He may intervene in the laws of nature, preventing them from producing their natural effects or aiding them in producing effects naturally impossible (miracles).

Obj. 1. There is a rule of the syllogism which says: If either premise is particular, the conclusion, too, must be particular (see p. 40). Now the minor of the deductive syllogism to which induction is reduced, is *particular*. Therefore the conclusion cannot be universal.

A. *Grant major. Dist. minor:* is explicitly particular, *yes*; is not implicitly universal, *no*.

Obj. 2. Because a thing is so, we may not infer that it *must* be so (see p. 73). But induction does this.

A. Dist. major: we may not infer immediately, *yes*; meditately, *no*. We bring the facts observed under a principle, viz. what pertains to the *essence*, not only is so, but must be so. It is the very purpose of induction to prove that a certain attribute pertains to the essence of a thing.

Obj. 3. As a matter of history, most laws based on induction were afterwards proved to be no laws at all. Therefore induction is practically useless.

A. Dist. antec. based on perfect induction, *no*; on imperfect induction, *transmit*.

Within the last centuries, every branch of natural science has definitely established some laws. The laws of falling bodies in mechanics, of chemical changes and combinations, Faraday's laws of electricity, Henry's laws of gases still stand unchallenged. Kepler's laws of planetary motion and Newton's law of gravitation are still the basis of astronomy. The instinctive actions of animals today are governed by the same laws as in Aristotle's time. If we will, we can ourselves test the laws of learning, recalling etc. laid down by psychologists etc.

Obj. 4. The formulation of a *hypothesis*, an essential part of induction, vitiates the process of induction. For it places the conclusion before the premises and destroys the observer's impartiality.

A. We deny the first charge. The hypothesis is not a conclusion verified, but *to be* verified or rejected.—There is, of course, danger that

a scientist may become enamored with his own hypothesis, but this danger can be averted by self-control and clear thinking.

Obj. 5. The conclusion of an inductive argument becomes the more probable, the more *numerous* are the instances observed. Therefore the only ground for generalization is repeated experience.

A. As a matter of fact, there comes a time when further experience adds nothing to the conviction of the scientist.

Obj. 6. Induction contains a *vicious circle*; for it supposes what it sets out to prove, viz. the existence of essences and natures.

A. No. Induction supposes that there are essences and natures. But it sets out to prove that such and such is the particular nature of this class of objects.

How, you ask, do we know that there are any essences *at all*? We answer: From the fact that things, though undergoing many changes, yet remain fundamentally the same. Also, if there were no essences, our universal concepts would have no objective validity.

Schol. MORAL LAWS

Let us carefully distinguish two meanings of this term. As used in ethics, a moral law is the dictate of sound reason telling us what we are allowed or obliged to do, what we may or must do; it also tells us what we may or must not do. If we obey this dictate, our actions are morally good; if we disobey, they are morally bad. But as used here (and in psychology), a moral law is a *human tendency* to follow a certain line of action or inaction. Thus there is in us the tendency to choose the more advantageous, the more pleasant, the easier course of action; we strive after truth and happiness etc. One and the same action may, of course, be considered under both aspects and judged accordingly. But at present we speak only of the second. Three things may be noted about moral laws in this sense:

a. Moral laws may be ascertained from daily experience, from statistics, from history.

b. Moral laws are not as iron as physical laws. They denote human tendencies, but leave the will free, and therefore allow of exceptions (morally good or bad).

c. Hence though the law itself may be formally certain (if enunciated with the possibility of exceptions), the application to concrete cases will give at most practical certitude.

Proof of Third Part

Observe. We all argue from cumulative evidence. To the man in the street it is the most convincing argument. But a) the frequency of error to which its application leads in practical life, calls for rigid *control* (see p. 53-4); b) the process itself must be *justified*.

There must be a reason why all independent signs point to the same fact (principle of sufficient reason).

Now there would be no reason for this, unless this fact were true. (This is to be proved, in each particular case, by eliminating all other reasons possible.)

Therefore this fact is true.

Obj. A mere collection of *probabilities* cannot beget formal certitude. Now convergence of probabilities is a mere collection of probabilities. Therefore it cannot beget formal certitude.

A. Dist. major: unless a new motive is added, *yes*; even when a new motive is added, *no*. The new motive is the principle of sufficient reason: Why do all these probabilities *converge*, i.e. point to one fact as their only explanation?

Cor. Therefore also the *ideas* which are the logical result of any of these three processes of reasoning, have objective validity; e.g. the idea of God. Such ideas are called *factual*, in opposition to primitive ideas.

Readings

On deduction: *Coffey*, Log. I p. 401-412; II p. 243-8; *Lahr* I p. 530-2.
 —On probable arguments: *Coffey*, Log. II p. 153-161; *Joyce* p. 341-4.
 —On induction: *Mercier-Parker* I p. 395-7; *Siwek*, in *Gregorianum* 1936 p. 224-253.—On the uniformity of nature: *Coffey*, Log. II p. 99-113; *Jouin* p. 57; *Joyce* p. 235-251; *Rickaby* p. 92-9.—On Mill's canons: *Coffey*, Log. II p. 172-201; *Cunningham* p. 140-2; *Honecker*, *Logik* p. 184; *Joyce* p. 320-336.—On scientific laws: *Coffey*, Log. II p. 205-9; *Joyce* p. 224-5.—On fallacies of induction: *Coffey*, Log. II p. 327-337.—On moral laws: *Coffey*, Log. II p. 249, 262; *Feder* p. 294-8; *Lahr* I p. 681; *Rother*, *Cert.* p. 15-19.

V. HUMAN TESTIMONY

THESIS 13

Under certain conditions, human testimony concerning external facts which the witness himself has observed, begets formal certitude.

1. Testimony, Witness

Testimony is the statement of a witness.

The word '*witness*' has three meanings (cf. Standard Dict. s.v. *testify*). a) In a wide sense, it signifies one who *manifests* something to another; this definition would also include gossipers. b) In a strict sense, it means one who manifests to another something *as true* (e.g. on the witness stand). Such a witness *guarantees* the truth of his statement; he feels insulted if he is not believed; if he lies or even errs, he deserves censure. c) In an even stricter sense, a witness is one who is *officially* or *authoritatively* constituted to act as witness. Thus Our Lord constituted the Apostles to be witnesses to His doctrine and miracles. An attorney is formally authorized to witness to a deed.

2. Meaning of Thesis:

a. We only speak of *human* testimony, that is, statements by which a man manifests something to another. We do not now speak of divine testimony.

b. We only speak of *immediate* testimony, that is, statements made by men who actually witnessed the events narrated (eye-witnesses, spectators). We do not speak of *hear-say*.

However, there is no essential difference between oral and written testimony, as long as we are sure *who* is the witness. Hence the thesis may easily be extended to statements made in letters etc.

c. In the thesis itself, we only speak of testimony which concerns *external* events, not testimony concerning internal facts or scientific conclusions. On these see Scholia.

Conditions of Certitude:

These differ according to the *number* of witnesses:

a. If there is only *one* witness (or only *a few*), I must be sure of his knowledge and veracity. Negatively, I must be able to exclude error and lying from the witness.

b. Where there are *many* witnesses, we need not inquire into the knowledge and veracity of the single witnesses. But we must make sure a) that they *agree* among themselves, that is, that they all testify to the same event, b) that there is *no collusion* among them to deceive.

Proof of Thesis

1. Where there is only *one* witness

Formal certitude is had from the testimony of a man who knows the truth, and tells what he knows.

Now sometimes we can be sure that a witness knows the truth and tells what he knows.

Therefore sometimes formal certitude is had from the testimony of one witness.

Proof of major: If the witness knows the truth, error on his part is excluded; his mind is conformed to reality. If he is truthful besides, lying is excluded; his speech is conformed to reality.

Proof of minor:

a) We may suppose a witness in the *strict* sense;¹ we may also limit the minor to the *substantials* of the event, abstracting from minor details, causes, consequences etc. Now to be sure of the witness' knowledge, we need only be sure that he could *easily* have known what he narrates, and that it was of *great interest* for him to know it; for under those two conditions everybody acquires the information he can.

Now we can, in a particular case, be sure that both conditions are verified; e.g. if we know that the event was public, extraordinary, easily perceived; that the witness was actually present at it; that great gain or damage was apt to accrue to him or his from the event; that his whole future depended on it etc.

b) We are assured of the witness' *truthfulness* if we know that he wished to tell the truth in this case, that a lie would profit him nothing ("nemo gratis mendax"), that it could easily be detected, that it would harm him or his friends, etc.

Obj. 1. We need not charge the witness with lying. He may *err* unconsciously; imagination or memory may play him a trick in recounting facts, especially where these happened years before.

A. Dist. under the conditions laid down, that is, where the facts are of tremendous importance to the witness and with regard to their substance, *no*; otherwise, *transmit*.

Obj. 2. "Testis unus, testis nullus," as experts in law say.

A. Dist. as a rule, *yes*; never, *no*. As a rule, the testimony of one man begets at most *practical* certitude; for ordinarily we cannot exclude all possibility of error or lying on the part of the witness. But from the argument it is clear that this is not always so.

Schol. An intellectual assent given to the statement of a witness on account of his authority is generally called 'belief.'

¹The case becomes stronger, of course, when the witness is officially appointed as such, or when God works a miracle to corroborate his statement.

The *authority* proper to a witness consists in his *knowledge* and *veracity*. We can believe a man when we are convinced that he knows the truth and that he wants to tell it.

2. Where there are *many* witnesses

There must be a *sufficient reason* why many witnesses, though not in collusion, yet agree in making a certain statement. Which reason can only be a common error or a common lie or the truth. No other reason can be alleged.

Now when many witnesses agree, though not in collusion, there cannot be a common error or a common lie.

Therefore the only sufficient reason for their statement is the truth of the event narrated.

Proof of minor: a) It could not be a common *error*; if the witnesses erred, why do they all agree? b) Nor could it be a common *lie*; for a common lie is impossible without collusion.

That there was no collusion among the witnesses, is often clear from the *personal touch* of their narrative. Where there is no collusion, each will narrate the event in his own way, order, words. There will then be divergence in minor details, but agreement on substantials.

Obj. A collection of *probabilities* cannot beget certitude. Now the joint testimony of many is merely a collection of probabilities.

A. Dist. major: unless a new motive is added, *yes*; even when a new motive is added, *no*. The new motive here is the *agreement* among *independent* witnesses; this fact, too, must have a sufficient reason (see p. 187).

SCHOLIA

1. Testimony Concerning *Internal* Facts

Can we ever be sure of the testimony by which somebody manifests to us his own *internal* facts; e.g. if someone complains of a headache?

We answer: Yes, provided we can be sure a) that the

person is in the *normal* state, b) that he can have no reason to *deceive* us in this matter.

The necessity of inserting the first proviso is evident from what was said about consciousness. Though consciousness correctly reports internal facts, yet we are apt to misinterpret them for one reason or another. Now such misinterpretation becomes habitual, as it were, in abnormal persons, so much so that they themselves may be totally unable to discern what is going on within them.

The second proviso can be tested by the same criteria as were applied above to the testimony of one witness.

2. *Doctrinal Testimony*

Historic testimony concerns particular facts; doctrinal or scientific testimony concerns both particular facts and general truths;¹ as when historians attest the existence of Homer, when scientists attest the existence of ether or of evolution, when astronomers attest the laws of planetary motion, when Scholastics postulate an *intellectus agens* etc.

Doctrinal testimony differs essentially from historic. Historic testimony easily leads to formal certitude; doctrinal testimony may beget probability (opinion), but *per se* it does not beget formal certitude.

History tells us that scientists have put forward many conclusions (theories) which were later abandoned. At one time, all astronomers taught the Ptolemaic system, which is now seen to be erroneous; in the 18th century, all chemists taught that burning was due to a special substance, called phlogiston, present in the combustible body. Reason also tells

¹To the latter category also belong proverbs, maxims, sayings etc., especially those *generalizations* which are borne out by more or less frequent experience; e.g. like father, like son; there are only three generations from shirtsleeves to shirtsleeves; a stitch in time saves nine etc.

us that all men, no matter how learned, may err in their conclusions.

Hence with regard to scientific theories, two maxims must be kept in mind: a) "Locus ab auctoritate est infirmissimus" (S. Thomas). That is to say, in scientific (and philosophical) matters an appeal to authority is the weakest of arguments. b) "Tantum valet auctoritas, quantum valent argumenta." That is, on the same matters, the word of a man is no better than his arguments. The first is for the layman, the second for the student of that particular science.

Still, *per accidens*, scientific testimony may beget formal certitude, viz. a) when the witnesses are many, b) when the matter is easy, c) when there is no reason to suspect prejudice etc.

3. *Divine Testimony*

When *God* speaks to us, He evidently deserves the fullest credence. For He possesses in the highest degree the two qualities which constitute the authority of a witness: knowledge and veracity. God knows all things and cannot possibly tell a lie.

This holds even if we do not fully *understand* God's revelation. Even in human affairs we accept a witness' word for facts of which we do not see how they could have happened; if we demanded to see the why of the facts of history before believing them, there would be little to believe. Much more so in the case of divine testimony. His authority infinitely transcends that of any human witness.

Readings

Coffey, Log. II p. 250-2; Ep. II p. 264, 298-300, 316; *Coppens* p. 87-90; *Cunningham* p. 143-156; *Jouin* p. 57-60; *Mercier-Parker* I p. 399-401; *Shallo* p. 126-131.—On the value of court testimonies: *Fröbes* II p. 140-2; *Feder*, Lehrbuch der hist. Methode p. 247-260.—On divine testimony: *Glenn*, Crit. p. 241-4; *Rickaby* p. 391-6; *Shallo* p. 136-9; *Varvello* p. 81-5.

just read

THESIS 14

From historical accounts we can at times reach formal certitude regarding events of the distant past.

In thesis 13 we spoke of contemporary events. There are, however, events which happened *long* ago; e.g. the American Revolution, the Migration of Nations, the Punic Wars, the flight of Israel out of Egypt, and so on. Such are the events we speak of in this thesis. And the question is whether we can ever be *sure* of them, and if so, under what conditions?

1. *Historical accounts* are narratives in which events of long ago are set forth; e.g. Tacitus' History of Rome; Cæsar's Gallic Wars; Pastor's History of the Popes; Bancroft's History of the U. S. The question is: Can we be sure that the facts narrated in such "histories" are true? Or when reading Cæsar's Gallic Wars, what are we to think of the events narrated?

We do not speak of any particular history (ancient or modern), but consider the problem *in general*.—Nor do we speak of the *documents* or *monuments* on which histories are based. These are the raw material and therefore extremely important for those who write history. But writing history is a special science and art, and thus falls outside the scope of a general epistemology.—Nor do we speak of the causes and effects (logical and psychological) of the events narrated, or of the "moral laws" manifested by history. We speak of the events themselves, the so-called "*historical facts*."—Lastly we may transmit minor details and concentrate on the *substance* of major events.

2. Conditions

First of all, there is no essential difference between the attestation of contemporaneous events or of events long past. Hence essentially the *same* conditions apply to our questions as were applied in thesis 13.

However, there is an accidental *difference* of some importance. When the testimony is oral (also over the telephone), we can, as a rule, easily assure ourselves a) of the person of the witness and hence of his credibility, b) of his exact statement, c) of its true meaning. But things are not so easy when there is question of ancient history. Hence before inquiring into the knowledge and veracity of the writer, three other points must be determined:

a. We must make sure of the *author* of the book. Who wrote this history? Who made these statements? Thus before believing what we read in the Gallic Wars, we want to make sure that Cæsar himself, the general who conducted the campaign, wrote the book, and not some other Roman. In other words, we must make sure that the book is *genuine*, really written by the one to whom it is attributed.¹

b. Secondly, we must make sure of the *integrity* of the book, that is, that the book has not been tampered with, but is substantially the same as it left the hands of the author.

c. Thirdly, we must make sure of the *exact meaning*. This implies two things: a) that the book in general is *meant to be* a historical account, and not merely a novel in the form of a history; β) that the author really *meant to say* as we understand him.

d. After these preliminary questions have been answered

¹It is more difficult, though not always impossible, to establish the credibility of a historical account even where the author remains unknown. But here we need not consider that case.

satisfactorily, we have yet to investigate and establish the author's *knowledge* and *veracity*.

Adversaries (cf. Feder, Lehrb. p. 36-38, 127)

1. From the fact that historians, even the best, often *contradict* one another, that *traditions* are frequently untrustworthy, that historical documents have been proved to be *forges*—some have drawn the conclusion that events of the past, especially of the distant past, can never be known for sure. In France the saying gained currency: "L'*histoire* n'est qu'une fable convenue."

2. In the last century, the same conclusion was sometimes drawn from the fact that witnesses generally *distort* the events which they narrate.

The following story is told of Sir Walter Raleigh. Standing at his window one day he observed a small riot going on in the street below. Soon after he had again seated himself at his desk, an eye-witness rushed into the room and gave Sir Raleigh his version of the riot. The account differed widely from what he himself had observed. When the visitor had left, Sir Walter took the manuscript of the second volume of his universal history and threw it into the fire. If eye-witnesses cannot be trusted, who can?

3. Laplace, the famous French astronomer, basing his argument on the *calculus of probabilities*, thought that the trustworthiness of a tradition decreased as the distance from the original event increases.

4. Some claim that we can be sure of the *statement* of witnesses, but not of the facts to which they testify.

Proof of Thesis

Historical accounts give us formal certitude regarding past events, if we are sure a) of their genuinity, b) of their integrity, c) of their true meaning, d) of their trustworthiness concerning the events narrated.

Now we can sometimes be sure of these 4 things.

Therefore historical accounts can sometimes give us formal certitude regarding past events.

Proof of major: This is the same as in the preceding thesis, except that now the writer of the book or statement is our witness.

Proof of minor:

a. We can be sure of the genuinity of a book from *external* arguments, that is, if contemporary or nearly contemporary writers unhesitatingly and constantly ascribe the book to this author. Sometimes external arguments can be confirmed by *internal* arguments, viz. when it can be shown that the language, diction, style etc. agree with that of this author as known from other sources.

b. We are, of course, sure of the integrity of a book if we have the *autograph*. But even where only *copies* or *translations* are at our disposal, we may be sure of it; e.g if there are many of them, made soon after publication in different countries, and if yet they all agree substantially.

c. We can be sure of the meaning of a book. a) That the book was meant as a true *history*, is evident if that is its obvious meaning, if the writer himself says so, if his contemporaries and all subsequent ages took it to be history. b) The *exact meaning* of the single statements can be found from the usage of words, phrases, constructions etc. common at that time, in that region, with that author. This supposes, of course, that we are acquainted with the language of the original as well as with the historical background of the author and of the events narrated.

d. The trustworthiness of the author can be established in the same manner as in thesis 13. We can likewise distinguish

two cases: a) where an event is narrated by only *one* historian; b) where *many* historians testify to the same event.

Objections

1. "The trustworthiness of evidence decreases as its distance in time from the events narrated increases" (C. J. Wright, *Miracle in History* p. 55).

A. The assertion is, to some extent, justified as regards oral tradition; but why should a written document become less evident with time? Besides the contents of one document may be confirmed by others. And so it has happened that events of long ago are now better known and understood than formerly.

2. No historian presents facts as they actually occurred.

A. a) We may transmit this objection, as we do not defend any particular history. b) *Dist.* no historian narrates facts with all the circumstances of time and place, *transmit*; no historian can give us the substance of historical facts, *no*.

3. Histories do not give us facts, but only their authors' ideas, subjective impressions etc.

A. a) *Transmit*, as above. b) *Dist.* some histories, *transmit*; all, and for the reason that they cannot give us more, *no*. Histories often contain accounts of eye-witnesses, they have been checked and controlled by other accounts, by documents and monuments etc.

4. Every age writes its own histories. What is praised to the skies in one generation, is condemned in the next, and the scoundrel of one century becomes the hero of the next.

A. *Dist.* so that all facts once admitted are now denied, or vice versa, *no*; so that the judgment on facts and persons varies, *transmit*.

5. How do we know that the conditions for making the historian's testimony reliable are fulfilled? Only through the testimony of other historians. Therefore a vicious circle.

A. *Dist.* we rely proximately on other historians, *transmit*; ultimately, *no*. Ultimately historical certitude is based on experience and reason, as appears from the proof of the thesis.

Schol. The Argument from Silence

Suppose that an event (important or not) of a certain period is passed over in silence by an eminent contemporary historian of that period, or that the event is not mentioned in any historical document for a long time afterward: can we

conclude that that event never happened? Thus Jean de Launoy, a professor of the Sorbonne, thought the argument conclusive if the event is nowhere mentioned for 200 years after it is supposed to have occurred.

But evidently this conclusion is an exaggeration. Silence on the part of contemporary historians or others is conclusive only if we can show *three* things: a) that those writers could not help knowing about the event if it had happened, b) that they were bound to mention it, c) that they had no motive for suppressing it.

Readings

Coffey, Log. II p. 253-9; *Cunningham* p. 148-156; *Rickaby* p. 377-390; *Shallo* p. 132-3; *de Smedt*, in Cath. Enc. s. v. Criticism, historical.—On the argument from silence: *Feder* p. 282-5.

THESIS 15

The historical truth of physical miracles can sometimes be known for certain, not only by eye-witnesses, but also by others, even centuries afterward.

We do not speak of any miracles in particular; but if miracles can occur at all, we claim that there is no special difficulty at least in ascertaining the facts in the case. That miracles can occur, is proved in cosmology.—Still, as concrete examples may be taken the miracles of Our Lord as narrated in the Gospels, or the miracles worked at Lourdes in France, or the miracles on the strength of which the Catholic Church canonizes a Saint.

1. A *physical miracle* is a sensible fact or event, which transcends the powers of nature and is due to divine intervention. The concept of physical miracle therefore contains three (and only three) elements: α) an event which can be perceived by man's external senses, β) which, however, cannot be produced by the laws of nature, γ) and which is due to divine intervention. Though other definitions are at times given, yet α) all Catholics substantially agree with this one, β) those who argue against miracles, implicitly suppose it.

There are also intellectual and moral miracles. But in this thesis it seems preferable to restrict our consideration to physical miracles.

2. The *historical truth* of a physical miracle is the external fact or event as such.

In the present thesis, therefore, we abstract from the other two essential elements. For the first question must always be: What has actually happened? And are we positive that this has happened? Only after this question of fact has been

settled satisfactorily, can we go on and inquire: α) is the fact above nature or can it perhaps be explained by natural laws? β) is the fact due to God's intervention or perhaps to some other preternatural agency?

3. We do not claim that the historical truth of physical miracles can always and by everybody be known for certain. But we do claim that formal certitude is had under the following *conditions*: α) for *eye-witnesses*, if their external senses functioned normally and they paid due attention; β) for *others*, if they have trustworthy testimony of eye-witnesses who observed the event under the above conditions.

Adversaries

1. Most modern rationalists argue that miracles are absolutely *impossible* and that therefore all accounts of miraculous events are to be distrusted and disregarded. Their protagonist is *David Hume*, who is thought to have disproved miracles for good, so much so that modern rationalists no longer argue the point. They consider the hypothesis of an event being a miracle impossible.¹

2. Other rationalists (like *Voltaire* and *Renan*), while not openly denying the possibility of miracles, demand wholly *unwarranted* conditions; e.g. that the miracle should have been foretold, or that it should be performed under laboratory conditions, or that it should be observed by a group of experts.

¹As a matter of fact, Hume's argumentation against miracles is utterly confusing and self-contradictory; he constantly shifts his ground; he fails to define essential terms and even to stick to implied definitions. These faults have been pointed out again and again, by Catholics as well as non-Catholics. Among the latter we mention the admirable exposé of A. E. Taylor, *David Hume and the Miraculous* (Cambridge University Press 1927). Or read J. J. Baierl, *Theory of Revelation I* 2 p. 380-403.

3. We may also mention a third class of rationalists, among them Renan, who deny that the conditions necessary for establishing the historical truth of miracles have ever been *fulfilled* in any particular case. Still, these are beyond our consideration, since we do not speak of any specific miracles.

Proof of Thesis

1. A physical miracle is an event which, as far as perceptibility goes, does not differ from any other event that can be perceived by our external senses.

Now, under the conditions laid down, we can be sure of the historical truth of other events.

Therefore under the same conditions, we can be sure of the historical truth of physical miracles.

We may admit what C. J. Wright (Miracle in History p. 54) says: "Human testimony being universally admitted to be fallible, the more extraordinary the event narrated, the more exacting must be the historical proofs for its occurrence." Only we insist that such "more exacting" criticism is had spontaneously, and demand that it be not unfair nor made a new condition of reliability.

2. Two illustrations:

a. As regards *eye-witnesses*: I can tell whether a man is seeing or blind. I may actually know a man who lost his eye-sight, that is, who had been seeing and is now blind; nor do I, to be sure of this, need to know how he lost his eye-sight. Again, I may know a man who had been blind, but can now again see (perhaps owing to a clever operation). Why then should it be impossible to know for sure that a man has been blind (perhaps from his birth) but suddenly recovered his sight at the mere command of somebody else? Where is the difference between such an event and the others as far as merely the *external facts* are concerned? (Read chapter 9 of St. John's Gospel).

b. As regards *posterity*: Posterity is even in better position with regard to narratives of miracles than of other historical facts. For, while some witnesses (immediate or mediate) may be over-credulous, others will be doubters, and will *examine* the narrative from every angle. This is particularly so when something of importance depends on the truth or untruth of the reported miracles.

Objections

A. In general

1. "Miracles do not happen" (Matthew Arnold).

A. *Gratis asseritur, gratis negatur.*

2. Miracles are *impossible*—like a square circle or a filled vacuum. Now "a non posse valet illatio ad non esse." Therefore we can be sure *a priori* that narratives of miracles are unreliable.

A. *Deny major.* No rationalist has ever shown that God cannot intervene in the normal workings of the laws of nature. But we leave the proof for the possibility of miracles to cosmology. Cf. Coffey, Log. II p. 255.

3. At least miracles are "*antecedently incredible.*" Garstang (Foundations of Bible History p. 136) says: "People trained to scientific thought today are not disposed to believe in the possibility of any phenomenon which defies the laws of human experience."

A. Also this assertion is wholly gratuitous, not supported by any evidence. In fact, if one understands the true relation of the creatures and their Maker, he will deem it antecedently credible that God may at times intervene for a higher purpose.

4. Miracles are something *supernatural*. Now the supernatural can neither be observed nor proved.

A. *Dist. major:* the event itself is supernatural, *no*; the cause or the mode of the event, *yes* (or *transmit*). Physical miracles are events which occur on this earth, and as such can be observed like any other event.

5. We can at most be *morally sure* that a miracle has taken place; but we are physically sure that no miracle has taken place; for a miracle is above the powers of nature. Now moral certitude must yield to physical certitude (see p. 232). Therefore we can never be certain that a miracle has taken place.

A. The syllogism contains several false assertions. a) Deny the

first part of the major. Eye-witnesses can easily be (and often are) *absolutely* certain of events, so much so that doubt is not only imprudent, but impossible to the normal mind. β) While miracles do transcend the power of nature, they are not *absolutely* impossible; hence physical certitude, while it may often (even generally) become absolute, at times may become nil, viz. when there are sufficient grounds for asserting an exception.

B. Belief on the testimony of others

1. Against a man who were to testify that a corpse was brought back to life, there would arise *a thousand* who could testify that a corpse never comes back to life. Now the testimony of one man must yield to that of a thousand. Therefore testimony in favor of a miracle is never to be credited.

A. This hoary difficulty rests on a confusion of ideas. What do or can the thousand testify to? Either that they have seen no other corpse come back to life, or that such a process is absolutely impossible. Now the first testimony does not contradict that of the lonely witness to the resurrection, as is evident; the second is a gratuitous assumption.

There would be contradictory testimonies if someone were to claim having seen John, who died Sunday, alive all day Monday, and if a thousand testified to having seen him dead all day Monday.

2. We must believe what is *more credible*. Now it is more credible that witnesses err or lie than that a miracle has happened.

A. *Transmit major. Dist. minor*: if the witnesses are trustworthy, *no*; if not, *transmit*.

C. Special objection

1. Catholics are too *credulous* when it comes to miracles.

A. There are various answers to this charge. a) We may retort by saying that rationalists are too incredulous; for they will not admit miracles no matter how strong the evidence for them is. b) It may be freely admitted that some Catholics were and are too credulous in such matters; but it would be a sophism pure and simple to charge all Catholics with this fault or to put the blame for it on Catholic faith as such. c) There are plenty of Catholic scholars (e. g. The Bollandists) who work diligently to ascertain which accounts of miracles (especially in the earlier ages of the Church) are trustworthy and which are not.

Readings

J. J. Baierl, The Theory of Revelation I 2 p. 355-403; *J. Brunsma*, A Handbook of Fundamental Theology II (Herder 1929) p. 103-113; *Cath. Encycl.* s. vv. Hagiography, History, Miracle; *Felder*, Christ and the Critics II p. 261-270; *Joyce*, The Question of Miracles ch. 3.

Epilogue

As a conclusion of this chapter on the sources of knowledge, we append two important remarks, one by Aristotle, the other by Cardinal Newman.

a. In his Nicomachean Ethics, Aristotle has this to say about the nature of the proofs to be adduced: "A well-educated man will expect exactness in every subject, according as the nature of it admits." Aristotle here warns us not to expect the same kind of argument for every subject.

S. Thomas repeats the same warning (In I Ethic. lect. 3).

b. In his Grammar of Assent, Card. Newman rightly insists "that a special preparation of mind is required for each separate department of inquiry and discussion."

Seeing then that life is wider than any single department, there is danger in over-specializing, especially in the young. The mind is apt to become cramped. A mathematical mind cannot see a perfectly valid proof in history, the metaphysician fears to overstep the charmed circle of abstract thought, to the scientist deductive reasoning is mere quibbling or juggling with words, the practical man loathes any discussion that will not lead to dollars and cents, and so on.

It is the purpose of a general education to counteract these tendencies of human nature.

Part 3

NATURE OF CERTITUDE

Unlike the medieval Scholastics, modern Scholastics are constrained to strengthen the very foundations of all knowledge. As is clear from the dissenting voices in the preceding theses, what may be called the *brute facts of knowledge* are, since the days of Descartes, being denied, either in general or in particular lines. To vindicate theses which no man should question in his sane moments, was the purpose of parts one and two. Without some such vindication, it were folly to philosophize on our knowledge.

Parts three and four, therefore, necessarily *suppose* the first two.

Having proved then in general that formal certitude is not an impossibility, and having pointed out the various God-given means to arrive at it, we now enter on the more *philosophical* discussion of its ultimate motive (whence its definition) and of its divisions. We want to understand fully what is meant by certitude in general and in its various kinds.

just definition

CHAPTER 1

Ultimate Motive of Formal Certitude

THESIS 16

Formal certitude is a firm assent (or dissent) based on motives which are in themselves infallible and are known to be infallible.

1. Formal Certitude

a. *Certitude* may be defined as a firm assent (or dissent), i.e. one which is unwavering and without fear of error. This definition sets off certitude from doubt as well as from opinion; for *doubt* is absence of assent (or dissent), and *opinion* is hesitating assent (or dissent). We doubt or opine precisely because we fear lest we be wrong.

b. *Formal* certitude may be defined as a firm assent (or dissent) which is necessarily true and known to be true, i.e. one in which the mind is necessarily conformed to its object and knows its own conformity. This definition sets off formal certitude from every other. For, though every certitude is firm and unhesitating, yet neither purely subjective nor practical nor respective certitude can be called *necessarily* true.

Our present purpose is to find the (logical) cause of this necessity. What makes formal certitude to be necessarily true? Or in other words: a) Why and how is this necessity of truth *present* in formal certitude? b) Why and how is it *known* to be present?

In this thesis we shall point out what kind of cause formal

certitude demands in *all* cases, in the next what it is in the *natural* order. The present thesis then is generic, the next specific.

2. Assent (or Dissent)

The term 'assent (or dissent)' primarily means a *judgment* (positive or negative).

But, as experience tells us, a judgment, especially when firm and oft-repeated, results in a corresponding state of the mind, which lasts until we forget all about it. Whatever the psychological explanation,¹ the fact is of daily occurrence. Hence the term 'assent (or dissent)' also stands for the *habitual state* resulting from a firm judgment.

3. Infallible Motive

a. Whenever we judge, we do so for some *motive* or reason. To judge without any motive at all, would not only be silly; it is simply impossible. This is so a *fortiori* of firm assents. My motives not only urge me to judge so, but also to judge firmly and unwaveringly.

b. An *infallible* motive is one which excludes the very possibility of error.

Note the word 'possibility.' A guide is not called infallible merely because there is no special reason for doubting his knowledge, or because it is highly improbable that he will lead us astray. We want to know *positively* that he *cannot* lead us astray; only then do we call him infallible. Similarly, we call a motive or reason for judging infallible only when it cannot lead us into error (see p. 121).

¹ See Gruender p. 296; Lahr I p. 323-330; Sortais I p. 416-423; Fröbes, Psych. spec. I p. 241-250; II p. 222.

Proof of Thesis

Formal certitude is a firm assent (or dissent) which is necessarily true and known to be true.

Now a) no assent can be such unless the motive for it is in itself infallible and is known (by me) to be infallible; b) the assent must be such (normally) if the motive is infallible and known to be infallible.

Therefore formal certitude is a firm assent (or dissent) based on motives which are in themselves infallible and are known to be infallible.

Proof of minor:

a. Only that judgment is necessarily true which *cannot* err. Now only an infallible motive excludes the very possibility of error; every other motive, no matter how alluring or appealing, leaves the door open for error. Therefore only an infallible motive is a sufficient guarantee for the (logical) truth of a judgment.

Moreover, our mind is not influenced by the motive as it is in itself, but as it is *known* (to me). Thus if one were to doubt the absolute validity of the rules of the syllogism, his conclusion, if correct, would indeed be necessarily true, but he would have little or no confidence in it. Similarly, when the Pope teaches ex cathedra, Catholics are formally certain, because they know the Pope to be infallible; a Protestant, who is not aware of the infallibility of the Pope, might possibly assent to the same doctrine on other grounds, but not because of the infallibility of the Pope.

b. If my motives for a judgment are infallible, then my mind is *necessarily* conformed to the object; and if I know moreover the motives to be infallible, then I *know* the conformity of my mind with the object.

Cor. 1. Therefore formal certitude is essentially made up of *three* elements: a) a firm assent (or dissent) of the mind, b) an infallible motive, c) knowledge of its infallibility.

The first element, viz. firmness, is the logical effect of the other two; for if my motive for a proposition is really infallible, and if at the same time I realize that it is infallible, the assent (or dissent) following must be firm and unhesitating.

Cor. 2. Now we also see why the *other* kinds of certitude fall short of the ideal: In none of them is the motive of assent infallible, nor is the possibility of error excluded.

Surely, there is nothing in prejudice or stubbornness (the usual reason for *purely subjective* certitude) that would exclude the very possibility of error; in fact, as we shall see, both are most prolific sources of error.—Nor is the possibility of error excluded by the mere fact that we cannot sift to the bottom all the details of our lives; inability of control does not spell impossibility of error. The possibility of error may be remote in *practical* certitude; it is there all the same.—The child rightly takes the mother's word for granted; but this does not exclude the possibility of the mother being wrong; consequently *respective* certitude is not necessarily true, though it is sufficient, under the circumstances, to quiet all doubt.

Cor. 3. Therefore formal certitude involves *reflection*, viz. a) on the native power of our mind to attain to truth (*aptitudo mentis*, as the Scholastics call it), b) on the force of the motive on account of which I assent or dissent. Vice versa, where this power of reflection is impeded, and as far as it is impeded (e.g. during sleep), formal certitude is impossible.

Cor. 4. Now we also see why the state of the mind may *vary* in the same individual or in different individuals, even

with regard to the same proposition. For the factors on which formal certitude depends, may vary.

Cor. 5. Therefore certitude is not based on blind instinct, feeling, impulse, personal satisfaction (as modern Protestants say, at least with regard to religion). Such *affections* cannot be the intellectual motives of assent. They may have their psychological importance, but logically they are unable to assure us of the objective truth. Else the scared child would be right in maintaining that there are hobgoblins in the dark cellar.

Cor. 6. Therefore, as far as epistemology is concerned, the concept of certitude is analogous, nay *extrinsically analogous*. Only formal certitude is true certitude, just as the Catholic Church is the only true Church of Christ. It is different, however, when the various kinds of certitude are examined from the standpoint of psychology or of practical life.

Schol. According to the modern system of philosophy which is called *Instrumentalism* (John Dewey), certitude is not an assent of the mind, but doing, action. But such a definition flies in the face of common usage, as is clear from consulting any of our larger dictionaries. And to change the accepted meanings of words, is nothing less than making speech impossible. Dewey's definition of certitude may also be rejected on the ground that it is a corollary of his philosophy, which is absurd.

Readings

Rother, Cert. p. 23-35, 76-86; *Shallo* p. 96-7.

✓ Just reparable
for proof in
notes.

THESIS 17

In the natural order, objective evidence is the ultimate and universal motive of certitude.

1. In the Natural Order

We only speak of that certitude for which our faculties are *naturally* sufficient, that is, without the special help of God's revelation and grace; as when we are convinced that the world exists, that $2 \times 2 = 4$, that the whole is bigger than any of its parts etc. There is also a supernatural certitude, as when we as Catholics believe that there are three Persons in God. For such certitude, the special gift of faith is required. Of this we do not speak (see p. 101).

2. Ultimate and Universal Motive

A *motive* is the reason for doing something. A motive of certitude, therefore, is the reason for giving a firm assent to a proposition. A motive of formal certitude, of which we here speak, is the reason for giving a firm assent to a proposition, but so that the proposition is necessarily true.

An *ultimate* motive is one beyond which no other can be assigned.—A *universal* motive is one which extends to all assents. Or it may be said to be that motive which is contained in all particular motives, and without which these would have no force.

3. Objective Evidence

Objective evidence may be defined (or rather described) as "*the object manifest to the mind.*" It may also be defined as the "*necessity of the object manifest to the mind.*" But we shall explain the first definition now.

a. The word '*object*' here must be taken in the *widest* sense possible. It must not be restricted to material things, nor to things actually existing. It may mean anything which the human intellect, without God's special aid, may know. It may be something material or spiritual, God or a creature, in heaven or on earth; it may be something actually existing or something merely possible; it may even be a figment of the mind (like the Porphyrian Tree). Briefly, it means anything *knowable*, anything that can be thrown into the form of a proposition, any relation between S and P or between the parts of a hypothetical proposition.

For '*object*' we may also substitute '*truth*,' i.e. ontological truth; for everything is ontologically true in the sense that it can be known (at least to some extent), and evidence refers to the object precisely in as far as it can be known.

b. The word '*manifest*' does not mean '*obvious*,' '*easily grasped*,' '*understood at once*.' That was the fundamental error of 18th century Illuminism. What is *obvious*, is of course, *evident*; but a proposition may be *evident* without being *obvious*; e.g. the Pythagorean theorem in geometry. It has often taken centuries of thought and labor to make some truths *evident*; e.g. that the earth is round. Candelabra had been swinging for thousands of years before their isochrony became *manifest* to Galileo. Cf. Rickaby p. 227-9, 241-2.

On the other hand, "*truth is not always in a well*," as Edgar Allen Poe rightly remarked. Some facts, some principles, some conclusions are so *obvious* that only a fool will deny them. They may be dubbed '*truisms*,' but that does not make them less *obvious*.

As used in our definition, the word '*manifest*' means two things: a) a certain quality of the *object*, which we may compare to the *illumination* which makes a material thing

visible to the eye; b) the act of the mind *seeing* or understanding the object (together with the consciousness of this act and its infallibility).¹

c. 'To the mind' is added in the definition in order to exclude the senses. Strictly speaking, only the mind judges, and the term 'objective evidence' refers primarily to judgments, that is, either to the *copula*, which is the form of the categorical judgment, or to the *relation* asserted between the parts of a hypothetical judgment.

Adversaries:

1. At the time of St. Thomas, some Arabian philosophers thought that an *angel* determined the mind to assent or dissent.—Bacon ascribed the ultimate determination of the mind to *God*.

2. Thomas Reid, a Scotch philosopher, thought that the ultimate reason for assenting firmly did not come from the object, but from some *blind instinct* within us urging us to assent to some propositions and to dissent from others.

3. According to Kant, our assents and dissents are due, at least partially, to the *peculiar nature of our intellect*. We judge things to be so, not because they are so, but because of some 'subjective forms' with which we were born. All our judgments then are at least partial illusions, like the judgments due to bias or prejudice.

Meaning of Thesis:

a. This thesis is purely *theoretical* and philosophical. It does not tell us how and when an object does become manifest to the mind. These questions were answered in the second part.

b. The thesis cannot be *proved* a priori. That would mean assigning an ulterior reason for the ultimate reason—clearly a

¹This act of seeing or understanding is often called 'subjective evidence.' An unfortunate term. Still, it is clear that objective evidence implies subjective evidence in this sense.

contradiction. The thesis can only be proved by clearly explaining the terms. After which their mutual relation must be self-evident.

The thesis may be brought home by taking a proposition with the *highest* kind of evidence, viz. a mathematical equation. Why are we sure that $2 \times 2 = 4$? Why do we all feel constrained to assent to it? Why cannot we dissent? Lastly, because the relation between S and P is so unmistakably manifest to us.

Proof of Thesis

The copula 'is' here may mean 'is as a matter of fact' or 'is by right.' We shall prove the thesis for both meanings.

1. (*As a matter of fact*)

That is as a matter of fact the ultimate and universal motive of certitude, on which men fall back ultimately *whenever* questioned as to the motive of their firm assent.

Now men always fall back ultimately on objective evidence.

Therefore objective evidence is the ultimate and universal motive of certitude.

The *major* is, concretely, the definition of ultimate and universal motive of certitude. Questioning a man brings out his grounds of assent. And if questioning is continued long enough, the ultimate grounds of assent will be brought to light.

Proof of minor: We are certain of what our consciousness or our senses tell us; we are certain of the truth of first principles; we are certain of truths that have been demonstrated to us; we are certain of facts which we did not witness ourselves, but which we hold on the strength of the testimony of others. (These heads contain all the various classes of certitude, as we saw).

Now, if asked why we are certain in any of these cases, our ultimate answer will invariably be: Because the thing is manifestly so and because I see it to be so. Which is precisely what we mean by objective evidence.

Cor. Therefore objective evidence is not something else or more than the *particular* motives of certitude. Rather, as 'man' is nothing beyond the individuals, so 'objective evidence' is embodied, made concrete in the particular motives.

2. (*By right*)

That is by right the ultimate and universal motive of certitude, a) beyond which no other can or need be assigned, b) without which no other motive would have any force.

Now a) no other motive can or need be assigned beyond objective evidence, b) no other motive would have any force without it.

Therefore objective evidence is by right the ultimate and universal motive of certitude.

Proof of minor: a) Clearly, when I can honestly say: The thing is manifestly so (cannot be otherwise), I can go back no further; nor need I, since there can then be no fear of error. b) The force of the particular motives consists precisely in this that each in its own sphere manifests to me that the thing is so.

Cor. Therefore, in the natural order, there is one supreme *rule* to guide us: We are only sure when a thing is evident to us. As long as a proposition is not evident, we ought not to give it an unhesitating assent.

Schol. Divisions of evidence

If asked how objects become manifest to the mind, one may simply enumerate the 5 sources of certitude. Scholastics, proceeding more on logical lines, indicate a threefold division:

a. Evidence is *immediate* if the object becomes manifest to us without the aid of demonstration. It is *mediate* if the object becomes manifest only through demonstration.

Look carefully at the definition of *immediate* evidence. Something is called immediately evident because it requires no strict proof, not because it is manifest as soon as we think of it or our attention is called to it.

b. Evidence is called *intrinsic* (internal) if the thing becomes manifest to us by merely considering the terms of the proposition (such as is had primarily in first principles). All other evidence is called *extrinsic*.—Sometimes, however, the evidence gained through the testimony of witnesses is called extrinsic, and all other evidence intrinsic. The terminology is not yet fixed.

A word about *extrinsic* evidence in the latter sense. To have this, two things must be intrinsically evident: the authority of the witness and the fact of his testifying. These two elements make up the so-called "evidence of credibility." On the strength of this evidence, I can prudently and firmly assent, even though I do not see why the thing was so or how it could be so. In other words, extrinsic evidence in the latter sense *rests on* intrinsic evidence, but does not give intrinsic evidence.

c. With the generality of modern Scholastics we shall also (after thesis 20) divide evidence into *perfect* (cogent) and *imperfect*.

Objections

1. We can have certitude even when the object is not manifest to us; e.g. in the *mysteries* of faith. Therefore objective evidence is not the universal motive of certitude.

A. *Dist. ant.* in the natural order, *no*; in the supernatural order, *transmit.*

2. Even children are sure that $2 \times 2 = 4$, although this is not manifest to them.

A. Either the child is not formally certain or it has what we call objective evidence. At first, indeed, children may merely repeat what the teacher told them (respective certitude); but gradually a light will dawn on them, and then the truth will become manifest to them.

3. We can become sure by believing *witnesses*. Now in such cases we have no objective evidence.

A. *Grant major.* *Dist. min.* extrinsic evidence, *no*; intrinsic evidence, *subdist.* of the truth witnessed, *yes*; of the credibility of the witness, *no*.

4. Students of geometry are sure of the Pythagorean theorem. But that theorem is by no means evident.

A. *Grant major.* *Dist. min.* immediately evident, *yes*; mediately evident, *no*. Or apply as a subdistinction the answer under 2.

5. Evidence requires something *beyond* itself, viz. attention and examination. Therefore evidence is not the ultimate motive.

A. *Dist.* examination and attention are *conditions of assent*, *yes*; motives, *no*.

6. The last reason why we assent firmly is because we see clearly that the thing is so and cannot be otherwise. But this is *subjective* evidence. Therefore subjective evidence is the ultimate motive.

A. Ultimately our mind must be conformed to reality (not to itself), and the light which manifests reality to the mind, must also be objective (not my passions or prejudices). Now this is primarily meant by objective evidence. That it *implies* the act of seeing, is not thereby denied.

SCHOLIA

1. False Opinions

1. *God's Authority*

A French bishop, Huet by name, despairing of man's natural powers for attaining to truth, thought we could only be sure of a proposition if it was guaranteed to us by God's infallible authority. With our natural powers, he thought, we could never get more than probability.

Refutation: Before we can believe God's word, we must know for certain a) that there is a God, b) that He knows all things, c) that He is all-truthful, d) that He has spoken to us. If we were not sure of these things *beforehand* and hence through our unaided faculties, how could we ever be sure of what God revealed to us?—Besides, we are sure of many things of which God has revealed nothing; e.g. the multiplication table.

This does not deny, of course, that we are absolutely certain of whatever God has revealed to us, nor that we are sure of some things only because God has revealed them; e.g. that there are three Persons in God.

2. *Agreement of Mankind.*

a. According to Herbert of Cherbury, father of English deism, all truths are, from our birth, imprinted in our soul, and all thought merely consists in discovering them. Now the only way to discover them is to find out on what all men of all times have agreed; for those and only those truths are really *inborn*; all else is untruth.

b. A French priest, de Lamennais by name, is known for his 'traditionalism.' According to him, we can only be sure of what all men agree upon—not precisely because all agree on it, but because this agreement is due to divine *revelation* vouchsafed to our first parents in paradise and handed on from generation to generation.

Refutation: Before we can take what all men agree upon, we must be sure a) that we ourselves exist, b) that other people exist and existed, c) that they all agreed and still agree on something etc. Besides, once upon a time all men were agreed that the earth was flat; what then?

Of course, we need not deny that the consent of mankind, when it can be had, is a powerful extrinsic argument (doctrinal testimony). And when there is question of fundamental truths, it may even be a certain argument.

3. *Demonstration*

Some philosophers would call nothing certain unless it be demonstrated.

Refutation: If everything had to be demonstrated, there would be no certitude at all. To see the truth of this statement, we need only reflect on what demonstration implies.

Demonstration is an argumentation in which the premises are certain and the form correct. Now if nothing is to be taken for granted except on demonstration, then each of the premises should be demonstrated by another argument, and

the premises of this again by other arguments, and so on indefinitely (see p. 68, 182).

Again, this does not deny that some things can and must be demonstrated; e.g. the existence of God, geometrical theorems etc.

4. *Experience*

According to modern positivism, nothing is really certain unless it can be verified by experience, or unless it can be subjected to the "scientific method."

Refutation: a) As has been proved, there are 5 sources of cognition; why limit one's field of vision to one, and then proclaim to the world that there is nothing beyond it?¹ b) The propositions of mathematics, at least as far as their universality and absolute certainty goes, do not depend on experience at all; they are analytic. c) Induction, too, is without foundation unless based on analytic principles. d) If experience were the only kind of evidence, we could not be sure about God's existence. Cf. Ryan p. 354-6.

Again, we admit that we can be sure of some things only through experience; e.g. that iron sinks in water.

2. Other Definitions of Objective Evidence

a. Some Scholastics, arguing chiefly against Kant, understood by objective evidence simply the *object* itself. They meant to insist that the object (as explained above) is the measure of the mind, that the object must determine the mind. They wished to counteract the theory that the influence of something subjective (blind instinct, Kant's categories) or of something outside the object (God, angel) makes me assent to a proposition as true.

If objective evidence be taken in this sense, our thesis is a mere corollary of the commonsense notion of *logical truth*.

¹This arbitrary limitation is really at the base of behaviorism. Because acts of consciousness cannot be measured by the yardstick, behaviorists discard them as rubbish.

b. Others insisted on the word '*evidence*,' meaning that the object must be *known* before I can rationally assent.

Also in this sense, our thesis is implied in the notion of logical truth, though it brings out the difference between ontological and logical truth.

c. Many Scholastics define objective evidence as the *necessity* of the object manifest to the mind.

But this definition may be taken in three different ways. Some mean by it that we have no objective evidence unless our *mind* is necessitated, so that it cannot help assenting (or dissenting). Others put the necessity in the *object* itself. Others again understand by it that there is a necessary *connection* between the motive of assent and the truth of the assertion. This last meaning seems preferable today.

We shall return to this question in theses 19 and 20.

3. Demonstration

On p. 69, demonstration was defined as "a correct argument from *certain* (and *evident*) premises." The reason for this definition is now clear. If the premises are purely *natural* truths, they must be evident. Not so, if the premises are taken from *revelation*.

Readings

Coffey, Ep. II p. 255-280, 290-307; *Coppens* p. 94-8; *Cunningham* p. 157-171; *Jouin* p. 64-71; *Lahr* I p. 709-718; *Mercier-Parker* I p. 362-373; *Rickaby* p. 188-231; *Shallo* p. 140-6.—On traditionalism: *Cath. Enc.* s. vv. Traditionalism; *Ubaghs*; *Coppens* p. 90-3; *Jouin* p. 61-3.

CHAPTER 2

Divisions of Formal Certitude

Formal certitude is not always the same. We are certain that $2 \times 2 = 4$; no one has ever explicitly denied it. We are certain that the world exists, that Rome exists. Yet if we look a little closer, we cannot fail to observe that there is some *difference* between these assents. The question now is how we had best divide certitude, and whether the divisions established are essential or accidental (see p. 63).

One division might be taken from the *5 sources* of certitude. The evidence of the senses is not exactly the same as the evidence of the principle of identity. Already Aristotle remarked that we must not look for the same kind of evidence or certitude in all things (see p. 205). Thus it would be foolish to demand mathematical evidence for every proposition before we call it certain (see p. 234).

However, we shall base our divisions rather on the various elements comprised in the definition of formal certitude. Formal certitude then is essentially made up of *three* elements: a) a firm assent (or dissent) of the mind, b) an infallible motive, c) knowledge of its infallibility (see p. 210). The question to be discussed now is whether these three elements are always the same, or whether perhaps there is a difference between various kinds of certitude. The following three theses give the answer.

THESIS 18

Direct certitude, too, is formal certitude, nor does it differ essentially from reflex certitude.

The difference between direct and reflex certitude concerns the *third* element mentioned above, viz. the knowledge of the infallibility of the motive. In reflex certitude we know *explicitly* and distinctly that our motive is infallible; in direct certitude we only know it *implicitly* and indistinctly.

To illustrate:

The ordinary Catholic, when reading in the Catechism that all men are born with original sin, at once concludes that he, too, was born with original sin. And he adheres firmly to this conclusion, hardly being aware that it is a conclusion. Another Catholic, who has studied logic and epistemology, may argue thus: All men are born with original sin, as the Catechism teaches; now I am a man; therefore I, too, was born with original sin. Examining then this syllogism in Darii, and finding that it violates no canon and that its premises are certain, he, too, adheres firmly to the conclusion.

Hence two questions:

a. Can we say that only the latter is formally certain? Or has the former, too, the layman in philosophy, formal certitude? Our thesis claims that the certitude of both is *formal*.

b. But even if both direct and reflex certitude are formal, there is yet a difference in the knowledge of the infallibility of the motive. In the latter, this is explicit, in the former, only implicit. Is this difference sufficient to call it *essential*? We answer in the negative.

Although there are even some Scholastics (as Card. Mercier) who think that only reflex certitude can be called formal, yet our thesis is *certain*, as will appear from the arguments.

Proof of First Part

1. If direct certitude were not formal, there would be no formal certitude at all.

Now the conclusion is absurd.

Therefore also the antecedent.

Proof of major: Reflex certitude means a *second* judgment, by which the evidence for an antecedent judgment is known and asserted explicitly. Now if a second explicit judgment were necessary to make the first certain, a third would be necessary to make the second certain—and so we should never come to an end; in other words, we should have no certitude at all.

2. That firm assent is formal certitude, which a) rests on an infallible motive and b) on the knowledge of its infallibility.

Now direct certitude, too, is such an assent.

Therefore direct certitude, too, is formal.

Proof of minor: a) The motive of direct certitude, too, is the object manifested through one of the 5 sources. b) If asked why we assent firmly, we indicate both the motive and its infallibility; now we should not do so unless we had been aware of both before assenting.

Obj. If this part of the thesis were true, even direct certitude would imply reflection, viz. on the motive.

A. *Dist.* implicit reflection, *yes*; explicit, *no* (see p. 127-8).

Cor. Therefore there are some truths of which we are *all* formally certain even before we explicitly investigate the 'evidence' for them. These are the *truths of common sense*. "There is a common stock of knowledge which all men and women use in the ordinary concerns of life, gained from the primitive and inevitable experiences which every human being must undergo. This common experience is found in language, and used in literature and conversation, and presup-

posed and added to in the conduct of art and commerce" (M. C. d'Arcy, in Dublin Review, Oct. 1927 p. 161). Any scientific or philosophical theory that contradicts any of these truths of common sense, may at once be dismissed as false. Cf. Rickaby p. 111-4.

Proof of Second Part

If there were an essential difference between direct and reflex certitude, the effects, too, would be essentially different.

Now the effect of both is essentially the same.

Therefore there is no essential difference.

Proof of minor: As a matter of fact, if there is any difference, the advantage lies with direct certitude. No layman in philosophy (e.g. bricklayers, farmers) ever doubted about the existence of this material world; but many philosophers did, misled while examining explicitly the arguments or motives for this conviction.

Cor. Therefore the division of certitude into direct and reflex is only *accidental*.

Obj. If this were so, the study of logic and epistemology would be a luxury, not a necessity.

A. *Dist.* for the greater part of mankind, *yes*; for all, *no*. We do not deny that explicit reflection often helps us in the acquisition of certitude, nor that it is necessary where the matter is complicated (e.g. in scientific and philosophical discussions). We merely deny that without it certitude cannot be formal.

SCHOLIA

1. Natural Logic

This thesis gives us the clue as to the *origin* of logic. By nature we are all endowed with certain rules, according to which we must reason and do reason in obvious matters. This native ability is called '*natural*' logic. Reflex or '*scientific*' logic is merely an accurate formulation and a further development of this ability (see p. 30).

But from the thesis it also follows that there is *no essential difference* between natural and scientific logic.

2. The Beginning of Philosophy

Of late, much has been written on this subject.

a. Some (Descartes, Locke, Kant) advocated *doubt* as the only logical attitude for the beginner in philosophy. Unless one doubts and calls in question every proposition ever held as true, how, they ask, does he know whether his assents and dissents are justified?

But such an attitude is suicidal. It is that of the universal skeptic, and as we saw, there is no hope for him.¹

Leibnitz thus characterized Descartes' method: "Ille dupliciter peccavit, nimium dubitando et nimium facile a dubitatione recedendo." Descartes went too far in his doubt and he was illogical in getting rid of it.

b. Others (among them some Scholastics) advocated merely *methodical* doubt as a starting point: the tyro in philosophy is not to doubt really, but to proceed *as if* he doubted everything.

If understood rightly, such an attitude may be tolerated; but there is grave danger of falling back into the first opinion. Card. Mercier and some of his disciples (e.g. Sentroul, Jeannière), the strongest advocates of this method, are not careful enough to keep it distinct from real doubt. Or else their procedure is mere comedy.²

c. Many modern Scholastics (e.g. Tongiorgi, Pesch, Frick) insist that three so-called "*primitive truths*" must be accepted from the start: the principle of contradiction, one's own existence, the native ability of the mind to attain truth.

¹Cf. *Cath. Enc.* s.v. Certitude, Epistemology; *Lahr* II p. 340-1; *Mahony*, Cart. ch. 4; *Rickaby* p. 148-163; *Varvello* p. 38-41.

²Cf. *Tonquédec* p. 436-449; *Modern Schoolman*, Jan. 1933, p. 32-4; *Miltner*, in the *New Schol.* 1931 p. 262-5.

This theory may be defended. But a) it is only probable; hence it would be a tactical blunder to base the whole of epistemology on it. b) The theory smacks somewhat of the mathematical method (see thesis 20). c) It is simpler to admit from the start whatever is evident, or at least whatever is immediately and perfectly evident.

d. All things considered, the most logical attitude to be adopted in the beginning of philosophy is neither doubt nor dogmatism (see p. 103, 106). But the philosopher intends to *examine* all truths (of the natural order), focussing his attention on the *motives* for them. In accordance with the present thesis, this means elevating direct certitude to reflex.

And if it should happen that philosophers do not agree in finding or explaining these motives, no one need abandon the truths themselves. Direct certitude does not depend on such an examination.

3. Legitimate Circle

This thesis also gives us the clue for the solution of a difficulty which is apt to be a stumbling-block for beginners.

Every science has its suppositions. To end somewhere, we must begin somewhere. Philosophy is no exception. Philosophy, too, supposes many things. A philosopher who would suppose nothing at all, would be stalled at the very beginning. In many things then philosophy cannot be a progress from nothing to something, but from direct to reflex certitude.

Nor is such a progress a vicious circle. For the philosopher does not suppose what is to be proved. He merely considers explicitly the *evidence* for what he has rightly supposed all along. It is a circle, but a *legitimate* one.

4. Answering Objections

Because the layman has not examined and analyzed the various sources and motives of certitude, neither can he solve

many *objections* brought against the truths of common sense. But since direct certitude, too, is formal, he may simply *disregard* them. In his case, ignorance is bliss. Thus why should all men worry about the objections which Kant advanced against many of these truths? The layman, if asked how he reconciles his conviction with these objections, has the right to answer: *I do not know*. Nor need he, on that account, become less firm in his assent.¹

5. The Index of Forbidden Books

Hence it is that the Catholic Church wisely *forbids* the reading of certain books. Most Catholics could not answer the objections brought in them against their religion, and might, on that account, become wavering in their faith. To obviate this danger, the Catholic Church issues the index of forbidden books.

Readings

Cath. Encycl., s. v. Certitude; *Coffey*, Epist. ch. 4, 23; *Hettinger*, Natural Religion, Introd.; *Rickaby* p. 108-133.

¹A like distinction must be made with regard to supernatural faith. Both the ordinary Catholic and the professor of theology must, prior to divine faith, be sure of the motives of credibility or preambles of faith. But these motives are known to the former only indistinctly, whereas the latter has gone over them minutely and weighed their precise degree of evidence. Cf. *Chr. Pesch*, Prael. dogm. VIII n. 297-307.

THESIS 19

Metaphysical certitude alone is perfect; still, also physical and moral certitude are formal certitude, though essentially inferior.

This division concerns the *second* element of the definition of certitude, viz. the *infallibility* of the motive. Does this infallibility admit degrees or must it always be absolute, so that, as soon as an exception is possible at all, there can be no question of formal certitude?

We claim the former.

Explanation of Terms :

Metaphysical or absolute certitude is a firm assent based on an absolutely infallible motive; as when we hold the truths of mathematics.—*Physical* certitude is a firm assent based on a motive which is physically infallible, though God, by His miraculous intervention, may make an exception; as when I judge that a stone unsupported in the air will fall to the ground.—*Moral* certitude is a firm assent based on a motive which is morally infallible, though an exception is possible through the utter perversity of man; as when I judge that a mother loves her child.

While these definitions are generally accepted, there is not the same unanimity as to what precisely is the *motive* meant in the definitions.

The ultimate motive of natural certitude is objective evidence, the object manifest to the mind. Now some would place the difference between these three kinds of certitude wholly in the object, that is, in the relation between S and P. They would divide 'certainty' rather than 'certitude.' This may be done. But it seems preferable and more consonant with the purpose of modern epistemology to include in the

motive also the *manifestation* of the object. By motive then we do not mean the objective relation existing between S and P, but the *connection* between the reason for the assertion and the truth of the assertion. For instance, I may assert the same thing either a) because I have seen it with my own eyes, or b) because I have reasoned it out, or c) because I have the testimony of reliable witnesses for it.

The second and the third part of the thesis are only *probable*. Some Scholastics (e.g. Palmieri) hold that formal certitude is either absolutely infallible or none at all. In other words, they admit no *degrees* of formal certitude.

Proof of First Part

That certitude is perfect which excludes all possibility of error.

Now metaphysical certitude alone excludes all possibility of error.

Therefore metaphysical certitude alone is perfect.

Proof of minor: The minor is an exclusive proposition (see p. 25). Hence: a) That metaphysical certitude excludes all possibility of error, is clear from its definition. b) Physical and moral certitude do not exclude all possibility of error, as is also evident from their definitions.

Proof of Second Part

Formal certitude is an assent based on an infallible motive.

Now such an assent is also had in physical and moral certitude.

Therefore also physical and moral certitude are formal certitude.

Proof of minor: a) The motives for these two kinds of firm assents are physical and moral *laws*; now these laws, though not absolute, yet produce their effect *necessarily* and *per se*; exceptions are indeed possible, but only through God's extraordinary intervention or man's utter perversity. b)

Such motives *suffice* for formal certitude. First, they are essentially superior to merely probable motives, which imply no necessity. Secondly, in practical life they are admitted to beget formal certitude; thus in a baseball game, everybody is sure that a fly ball will not remain hanging in the air; to call it merely probable, would be ridiculous.

Obj. 1. The motive of assent is either infallible or it is not; there is no third alternative. Now if it is infallible, the assent based on it is absolutely certain; if not, there is no certitude. Therefore either absolute certitude or none at all.

A. Dist. major: either absolutely or physically or morally infallible or not infallible, *yes*; either absolutely infallible or not infallible at all, *no*.

Obj. 2. A motive is infallible only if it *cannot* lead into error. Now a motive which is only physically or morally infallible, may lead one into error. Therefore such a motive is not infallible.

A. Dist. major: absolutely infallible, *yes*; physically or morally infallible, *subd.* if it cannot lead *per se* into error, *yes*; only if it can never lead into error, *no*.

Obj. 3. Formal certitude excludes the very *possibility* of the opposite. Now an assent based on a physical or moral motive does not exclude the possibility of the opposite. Therefore such an assent is not formal certitude.

A. Dist. major: metaphysical certitude, *yes*; physical or moral certitude, *subdist.* exclude the possibility of the opposite *per se*, *yes*; also *per accidens*, *no*.

Obj. 4. Formal certitude is incompatible with error. Now an assent based on a physical or a moral motive may be erroneous. Therefore such an assent is not formal certitude.

A. Apply the same distinction as to the preceding objection.

Obj. 5. The last example given in the proof of the minor shows that these two kinds of certitude do not differ essentially from *practical* certitude. But practical certitude is not formal.

A. Deny major. In the former, the motive of assent is a physical or moral *law*; in the latter, there is no law to appeal to.

Proof of Third Part

That assent is essentially inferior to metaphysical certitude, whose motive is essentially inferior.

Now the motive of physical and moral certitude is essentially inferior to that of metaphysical certitude.

Therefore physical and moral certitude are essentially inferior to metaphysical certitude.

Proof of major: The motive differentiates the assent; as the motive, so—logically and rationally—the assent. Therefore an essential difference in the motive will mean an essential difference in the assent. Now a difference in the infallibility of the motive constitutes an essential difference in the motive itself. And if the difference is one of degree, there will be essentially different degrees of the motive.

Proof of minor: The motive of physical and moral certitude is not absolutely infallible, but only *per se*.

Cor. Therefore there are (probably) three essentially different *degrees* of formal certitude: the highest is metaphysical certitude; physical certitude is essentially lower; moral certitude is still lower.

Hence 'formal certitude' is not a universal; for it is not predicated univocally of the three kinds. Rather it is an *analogous* term, and its principal analogue is metaphysical certitude.

Schol. Reflection may turn physical or moral certitude into *metaphysical*, viz. if they can be brought under an analytic principle. Thus our certitude of the existence of an outer world is proximately physical; but we can and do reflect that there would be absolutely no *sufficient reason* for thousands and millions of our daily experiences unless this outer world existed; hence all of us, except perhaps some idealists, are absolutely sure that it really exists. The same kind of reflection may be applied to innumerable cases of human testimony, which proximately yields only moral certitude; e.g. that Rome exists.

Readings

Cath. Encycl., s. v. Certitude; *Coffey*, Log. II p. 214-223; *Cunningham* p. 21-31; *Rickaby* p. 50-107; *Rother*, Cert. p. 36-76.

THESIS 20

Formal certitude may be mathematical or non-mathematical, necessary or free.

These two divisions of formal certitude (especially the second) concern the *first* element of its definition. Is our assent always such that we are physically forced to admit the truth of a proposition even against our will, or does our will sometimes aid the intellect in its *firmness*?

Explanation of Terms:

1. *Mathematical* certitude is that certitude which is had in the axioms, definitions, easier theorems of abstract mathematics (arithmetic, algebra, geometry etc., theoretical physics).—*Non-mathematical* certitude is certitude had outside abstract mathematics.

2. *Necessary* certitude is a firm assent based on a motive which makes all doubt impossible. It is called 'necessary,' because the evidence is such as to compel the intellect.—*Free* certitude is a firm assent based on a motive which excludes all *prudent*, but not all imprudent doubt.

Lest free certitude be misunderstood, three things ought to be explained:

a. An *imprudent doubt* (fear of error) is one which is possible, but devoid of solid foundation. Doubt which has a solid foundation, is called *prudent*.

b. The word 'free' does not mean arbitrary or ill-founded. It does not mean that I see what I want to see, or that I see what is not there. In free certitude, the will does not add to the evidence; it does not give to the mind a heightened power of vision (as does the microscope to the eye). But by a sort

of sympathetic action (as the psychologists say) the will a) *focuses* the mind's eye on the evidence present, b) *shuts out* factors (e.g. prejudices) which might prevent or distract the mind from letting the evidence produce its full effect, but especially c) *directly influences* the mind, commanding it to assent.

This certitude is called 'free,' not because the intellect is a free faculty, but because the assent depends directly on the influence of the will. (However, if one prefers the name 'moral certitude,' let him use that; no use quarreling about names.)

Meaning of Thesis:

The two divisions of formal certitude here proposed are not adequately distinct, but *overlap*. Hence the thesis must not be taken to mean: All mathematical certitude is necessary, and all non-mathematical free. Nor vice versa: All necessary certitude is mathematical, all free certitude non-mathematical.

The first division is defended as *certain*, the second as *most probable*.

Adversaries

1. Already *Duns Scotus* (1270-1308) manifests the tendency to apply the mathematical method to problems of philosophy and to mistrust non-mathematical evidence. The *nominalists* of the 14th century demanded mathematical evidence for every proposition and system. The *rationalists* of later centuries (Descartes, Spinoza, Leibnitz, Wolff) took the procedure common in abstract mathematics as their model for philosophical argumentation. As mathematics lays down a few definitions and axioms and then deduces from these all theorems, so they would have the philosopher employ the same method, to the exclusion of all

experience.¹ "The rationalist of the Cartesian-Spinozistic tradition undertakes to furnish mathematically certain proofs for every proposition of his system. The modern rationalist, before whose mind mathematics continues to hover as an ideal of philosophy, demands them—at least from his opponent" (Zybura p. 523-4). Lastly, Coffey says regarding some modern *scientists*: "The terms 'science' and 'scientific' are often narrowly used nowadays as synonymous with the exact sciences of mathematics, abstract mechanics, and physics conceived and treated mechanically; and sometimes with the mischievous insinuation that in these departments alone is to be found certain knowledge" (Logic II p. 134).

2. Some few Scholastics (e.g. Frick) admit only necessary certitude to be formal.

Proof of First Part

As hardly any one denies that mathematics yields formal certitude, it will suffice to show that there is formal certitude outside the field of abstract mathematics and theoretical physics. Now a firm assent, based on an infallible motive which is known to be infallible, can be had from all the 5 *sources* of knowledge, as was proved above.

Obj. At least one cannot have 'scientific' certitude except on the basis of exact mathematics.

A. Dist. if the term 'scientific' is defined thus, *yes*; otherwise, *no*. But to define 'science' and 'scientific' so that they are no longer applicable except to mathematics, is an unwarranted procedure.

Proof of Second Part

1. Necessary certitude is based on evidence which makes all doubt impossible; free certitude is based on evidence which does not make all imprudent doubt impossible.

¹Cf. Klimke I p. 232, 309, 317, 322, 356.

Now sometimes the evidence for formal certitude is of the former kind, sometimes of the latter.

Therefore certitude is sometimes necessary, sometimes free.

Proof of minor: There are truths which all admit, even *against their will*; e.g. the multiplication table, the principle of contradiction, one's own existence, the existence of an outer world. There are other truths which are not admitted by those *ill-disposed* toward them (e.g. the existence of miracles, the immortality of the human soul, the necessity of worshipping God). Now if the former depended on our good will, they would not be admitted universally; and if the latter did not depend on our good will, they would not be denied by so many.

2. *Physical* certitude is formal certitude. (This is admitted by those Scholastics against whom we argue).

Now physical certitude is free (in the sense explained).

Therefore formal certitude is sometimes free.

Proof of minor: If physical certitude were necessary, error would sometimes be necessary. But this cannot be, since our mind is made for the truth.

3. The thesis may be confirmed by many passages from *St. Thomas*. Thus according to him, the peculiar excellence of the first principles consists in this that they *cannot* be denied, that everyone must see their truth ("quorum contrarium nullus credere potest, etsi ore proferat"). See *St. Thomas*, In I Poster. Anal., lectio 5 and 19; In IV Metaph. lectio 6).

Therefore *St. Thomas* supposes (at least implicitly) that there are other truths which, though also certain, do not enjoy this peculiar excellence and compelling force. (Other perti-

nent passages are to be found in his *Summa Theologica* I qu. 82 a. 1 and 2; qu. 85 a. 6; I II qu. 17 a. 6; *De Veritate*, qu. 14 a. 1).¹

4. That this division of certitude is not unusual outside of scholastic circles, is clear from the Standard Dictionary, s.v. *Demonstration*: "Proof in the strict sense is complete, *irresistible* evidence. . . . Moral certainty is a conviction resting on such evidence as puts a matter *beyond reasonable doubt*, while not so *irresistible* as demonstration."

Cor. Therefore *evidence* itself, the universal motive of formal certitude, must not be conceived as indivisible. As daylight is overpowering at noon, but gradually becomes less and less until there is complete darkness, so evidence, in as far as the manifestation of the object is denoted, has an infinite number of *degrees*.

Objections

1. All truths have been doubted or denied. Therefore there is no necessary certitude.

A. Dist. ant. really, *no*; as far as assertion goes, *transmit*.

First of all, the fact that someone says he doubts a proposition, is of itself no cogent proof that he *really* doubts it in his mind. He may lie or misunderstand his own assertion. Secondly, the universal skeptics, who claim to doubt all propositions, are led to their assertion not by immediate evidence, but by a process of *reasoning* which is easily shown to be faulty. Thirdly, even the universal skeptics do not really doubt *all* things; else their practical life would be altogether different from that of the rest of mankind.

To some extent, what is said here of skeptics, may be applied to idealists,² atheists, determinists etc., in fact to all who deny a truth of common sense.

¹Likewise, all modern Scholastics of note, as far as I have been able to verify, maintain the distinction. The only exception I know of is Father Frick.

²A good account of the various (illogical) steps by which Christian Science arrived at *idealism*, may be read in E. F. Dakin's book "Mrs. Eddy" (p. 99, popular ed. of 1930).

2. If there were any necessary certitude, it would be had in *mathematics*. Now even mathematical propositions have been doubted: witness Einstein and the geometry of the 4-dimensional space.

A. The same as above.

3. Formal certitude excludes all *fear of error*. Now free certitude does not exclude all fear of error. Therefore free certitude is not formal.

A. *Dist. major*: all prudent fear, *yes*; even imprudent fear *subd.* necessary certitude, *yes*; free certitude, *no*.

4. The ultimate motive of certitude is objective evidence. Now in free certitude, the ultimate motive would be the influence of the *will*.

A. *Dist. major*: the ultimate motive, *yes*; the only efficient cause, *subd.* where the evidence is perfect, *yes*; where the evidence is imperfect, *no*.

The influence of the will pertains to the efficient cause of the assent; it is not a motive, understanding by that the formal extrinsic cause ('object') or the manifestation of the object.¹

5. Objective evidence is either sufficient for a firm assent or it is insufficient. If sufficient, the intellect is compelled to assent; if insufficient, the intellect cannot be said to be formally certain. Therefore there is no room for free certitude.

A. There is a third possibility. Objective evidence may be sufficient for a firm assent, yet not so overpowering as to preclude the possibility of all doubt. In that case, the assent is not extorted.

6. Free certitude makes truth dependent on the *will*: "Stet pro ratione voluntas."

A. No. In free certitude, the will does not make up for the lack of arguments, nor does it specify the contents of the judgment. The mind has sufficient evidence to assent firmly. But because the evidence is not overwhelming, the mind would not, of itself, assent. Something else is needed, something entirely *different* from objective evidence. That is the *efficient causality* of the will.

Of course, the will needs a motive of its own to exert this influence, and the mind has to present such a motive (some good) to the will.

Schol. 1. There is a *reflex judgment* involved in either certitude. In necessary certitude I judge: The object forces

¹Observe: That the will can *directly* influence the intellect and bring about an assent, even a firm assent, cannot be denied. This influence is apparent in case of *opinion* and *error*. For neither in opinion nor in error does the object force the intellect to assent; yet the intellect does assent, even firmly. Cf. Dict. de Théol. Cath. s.v. *Péché*, col. 190.

me to say that S is P , and in such a case I am right to say that S is P . In free certitude I judge: While the object does not force me, yet doubt is irrational and besides it is good for me to say that S is P ; therefore I assent.

One point in this latter reflex judgment needs elucidation. Free certitude is based on the evident reflex judgment that doubt is *irrational*. To this is added the *willingness* or *obligation* of assenting. We are glad to assent, we may be obliged to assent by a higher authority, we may find it convenient or agreeable to assent. Any of these motives may be sufficient for the will to command assent. But where all of them are lacking, the assent will not be given; where they are revoked, the assent is revoked.

Schol. 2. Not only am I forced to hold certain propositions, there are also some which I *cannot* hold. To use Chesterton's examples: I cannot hold that horses grow feathers; I cannot disbelieve an elephant after I have seen one. Or to speak with Newman: "He who has seen a ghost, cannot be as if he had never seen it."

Schol. 3. If one asks more specifically *which* truths possess that quality of coercing the mind, the answer would seem to be this: a) the facts of immediate experience (internal and external); b) some recognitions of memory proper; c) first principles, such as the principle of contradiction, of identity, of causality; d) mathematics, both in its principles and proximate conclusions; e) the laws of deductive logic.

Schol. 4. Mention should be made of a division of certitude which Card. Newman introduced in his 'Grammar of Assent.' He distinguishes between *notional* and *real* assent, according as *vivid emotions* are absent from the assent or accompany it. Notional assent is without emotional background, lackadaisical, such as is generally given to the highly

abstract principles of philosophy. Real assent is due to powerful emotions roused by personal experience, profound meditation or divine inspiration, stirring oratory etc.; it creates heroes and saints, also fanatics, for whom one principle is the mainspring of all their actions. Cf. Fröbes II p. 179; Allers p. 44-5.

No one can deny the difference between these two kinds of assent or its practical import. But the nature of certitude is not thereby affected; the division is *accidental*, not essential.

Readings

Coffey, Epist. I p. 49-59; *Lahr* I p. 682-692; *Pontifex* p. 41-93.

CHAPTER 3

Opinion and Probability

Certitude is not the only state of the mind. There are also ignorance, doubt, opinion (see p. 104). A few remarks about the last.

1. Opinion is *hesitating* assent or dissent. An opinion therefore differs essentially a) from doubt, in which we suspend judgment, b) from certitude, which is a firm, unhesitating assent.

The reason why we sometimes judge hesitatingly, is because on the one hand we have a good, solid motive, while on the other we realize that the evidence is not sufficient for a firm assent. The motive of such an assent is often called its 'probability,' and an opinion is also called a 'probable judgment.'

An opinion is called *prudent*, if it rests on a really solid motive, i.e. one which is sufficient for a serious-minded normal person. If the assent rests on a very feeble motive, it is called *imprudent*.

2. Probability is called *intrinsic* or *extrinsic*, according as the motive of assent is taken from the object itself or from external testimony. Thus it is intrinsically probable that a sturdy youth will live for a number of years; but for the layman the atomic theory is only extrinsically probable; he assents to it only on the testimony of scientists (see p. 192).

3. Probability admits *degrees*; for one motive may be better and more solid than another. Thus if 10 scientists testify to the truth of the atomic theory, the layman has a stronger motive for assenting than if only one scientist proposed it.

Hence:

- a. One opinion may be *more probable* than another, viz. when better arguments are had for the one than for its opposite.
- b. An opinion is said to be *highly probable*, if there are excellent reasons for it, hardly any against it.
- c. An opinion is *most probable*, if there are excellent reasons for it, hardly any for contrary opinions on the same matter.
- d. An opinion is *the only probable one*, if there are solid (though not infallible) reasons for it and if all other opinions concerning the same matter are certainly wrong or devoid of any solid foundation.

4. If either *premise* of a syllogism is merely probable, also the conclusion is merely probable (see p. 69, 183).

This rule is often thought to be contained in the second rule of the syllogism. Not so. The foundation for the rule is the principle of sufficient reason. A chain is no stronger than its weakest link.

5. Two *contradictory* propositions may be probable at the same time. This happens when the motives for them are disparate, so that they do not destroy each other.

6. When one of two contradictory propositions becomes *less probable*, it does not *eo ipso* become improbable or false. Nor does its opposite become certain. The motives may be disparate, and therefore not destroy each other.

Part 4

TRUTH AND ERROR

CHAPTER 1

Definitions

1. The Scholastic Definitions

a. *Truth*

Truth, taken in the abstract, means a relation. Logical truth means the relation of conformity between the mind and reality, so, however, that reality is the pattern and measure, and that the mind must be conformed to reality—not vice versa. Hence *logical* truth is defined as *conformity of the mind to reality*.

However, the word 'truth' may also be taken concretely, and then signifies a proposition or *judgment* which is in conformity with reality. As St. Thomas (*Contra Gentiles* I c. 59) says, we call a proposition true when "it affirms what is and denies what is not" ("affirmat esse quod est, et negat esse quod non est"). It is in this sense that we speak, for instance, of the truths of the Christian religion.

A word on each term of the definition:

a. The term 'mind' means the *objective* judgment, not the subjective operation. St. Thomas (l.c.) rightly points out: "Truth pertains to what the intellect says, not to the operation by which the intellect says it."

b. 'Reality' means *being* in the widest sense: that which exists, did exist, will exist, can exist independently of my present judgment.

c. The English term 'conformity' is hardly open to miscon-

ception. But the Scholastics had used the term '*adaequatio*', and some understood this to mean that to have truth the mind must know all about reality or at least all about some portion of reality. That Scholastics never meant this, is clear from St. Thomas' definition; they were not skeptics.

b. *Error*

As truth consists in conformity, so error, its opposite, consists in *difformity* of the mind to reality. As St. Thomas, speaking concretely, says: We err when we affirm what is not, or deny what is.

However, to avoid difficulties, the word 'difformity' must be modified by an adjective.

Our judgments never express the *whole* reality. Thus when I say: This is a chair, I omit many things which are also in the existing object; e.g. its shape, color, weight. My mind therefore cannot be said to be conformed to the whole object, and in so far there is a certain difformity. Yet no one doubts that the proposition: This is a chair, is true. To demand more, to say that we know nothing unless we know everything, is to invite skepticism. "No judgment, no matter how penetrating, conforms the mind completely with reality, for the simple reason that the human mind is finite, limited" (Ryan p. 220).

For this reason, error is defined more accurately as *positive* difformity between mind and reality. Error does not consist in omitting certain aspects of reality, but only in misrepresenting that aspect of which I judge. (Compare what was said about universal concepts on p. 168.)

c. *Proof*

These definitions of truth and error agree with universal usage, "penes quem est ius et norma loquendi." Scholastics did not invent these meanings or definitions, they merely gave them accurate expression. See Coffey, Epist. I p. 40.

Contemporary American logicians, who are practically unanimous in rejecting this definition of truth, style it the "copy theory," the "correspondence theory," the "one-one correspondence theory." The one objection against it, which appears fatal to D. S. Robinson (Princ. of Reasoning p. 350-1), is that it supposes "transcendence" of cognition (see p. 123-4).

2. Other Definitions

1. According to Kant, truth does not consist in conformity of mind with reality, but of the mind with its own idea.

But if this were so, there would be no error; to err, the mind would have to disagree with its own idea—clearly an impossibility.—Nor would there be any difference between the judgments of a normal individual and the ravings of a maniac.—Lastly, this definition evidently goes against common usage, which calls true that which agrees with reality.

Card. Mercier, of course, rejects this definition. But in order to have a common platform for his dispute with Kant, he accepts it as a *beginning*. He wants then to arrive at the common notion of truth. This methodical procedure is not to be recommended.¹

2. Others (Ockam, Lotze) would understand by truth not strict conformity, but some sort of *likeness*.

But if this were so, all our judgments would be essentially false; for we use the copula 'to be,' which signifies identity, not mere likeness. When I say that Peter is a man, I mean something else than when I say that Peter is like John.

Akin to this definition is that which calls truth an *approximation* to reality. It is refuted by the same argument.

But let no one confound approximation as a definition of truth with the truth of an *approximate statement*. Also an approximate statement (e.g. Albany lies about 200 miles west of Boston) may be wholly true, and I may be formally certain of its truth. Modern scientists who insist on exact quantita-

¹ Coffey, Epist. II p. 251-4; Lahr I p. 674-5; II p. 715; Rickaby p. 196-200, 212-5; Ryan p. 222-6.

tive measurements, are apt to underrate the theoretical or practical value of such statements.

3. The so-called "coherence theory" defines truth as "the systematic coherence of a significant whole." "What we know is always some actual implicative system in reality itself. The truth or trueness of any belief is what it gets by virtue of its embodying that actual system" (D. S. Robinson, *Princ. of Reasoning* p. 358-9).

Of course, there can be no contradiction between truth and truth. But a) a series of statements could very well be consistent with one another and yet be false; lunatics are very logical if you grant them their first premises; b) the theory supposes that we know nothing unless we know everything.¹

4. According to *pragmatists* (W. James), truth does not consist in conformity between the mind and the object judged about, but between the mind and human life. Truth is the "cash value" of an idea. True is what *succeeds*; false is what does not succeed. This is also called the *instrumental* theory of truth (John Dewey).

But apart from the fact that this definition implies relativism (see p. 115), pragmatists and instrumentalists evidently confound the ordinary (not invariable) effect of truth with truth itself. See Ryan p. 226-232.

5. Owing to the fluctuations of modern scientific theories, truth is often said to be merely the best way of conceiving things as far as our *present knowledge* goes; this implies, of course, that tomorrow another conception may be found to be more serviceable and therefore true.

Also this definition opens the gates wide for relativism. As we now have "dated coffee," so we would have "dated truth": no good after the date stamped on either.

¹*Coffey*, Log. I p. 20-3; Epist. II p. 284-290; *Ryan* p. 222-6; *Rickaby* p. 196-200.

CHAPTER 2

Possession of Truth

THESIS 21

Truth and error are had fully in the judgment alone.

In logic we distinguished *three* acts of the mind: simple apprehension, judgment and reasoning. Simple apprehension is that act of the mind by which we merely perceive the object, but affirm or deny nothing about it (see p. 12). Judgment is that act of the mind by which we affirm or deny something (see p. 20). Reasoning is the process of arriving at the unknown through what is already known (see p. 30).

The question for discussion now is this: In which of these three acts of the mind do we possess truth fully or commit ourselves fully to an error?¹

The word 'fully' calls for two further remarks:

a. To possess truth fully, is to possess it as much as our human nature allows and desires.

As we saw above, truth may be possessed by us in two ways: hesitatingly and unhesitatingly. Possessing truth unhesitatingly is called certitude. Human nature can attain to this degree and is not fully satisfied with anything less. Our question then may be proposed thus: To which acts of the mind can we ascribe *certitude*?

b. *Error*, too, may be hesitating and unhesitating. In

¹The question as to distinction and priority of these acts, which is discussed by Rickaby (p. 15-41), pertains to psychology. Our thesis does not depend on its solution.

complete error, our mind not only disagrees with reality, but we have even persuaded ourselves that our mind is in agreement with reality. The first degree is bad enough; but the second is far worse; for there is no more hope after that.

Judgments may be affirmative or negative, categorical or hypothetical, explicit or implicit; none of them is excluded. But we only speak of formal, not of virtual judgments (see p. 124).

Proof of Thesis

1. Truth and error are fully had in those acts which everybody calls true or false in the strict sense of the word.

Now judgments alone are called true or false in the strict sense of the word.

Therefore truth and error are had fully in judgments alone.

Proof of minor: The minor is an exclusive proposition. Hence: a) That judgments are called true or false, is too well known to need proof. b) That neither simple apprehension (idea) nor reasoning are properly called true or false, is also evident. In simple apprehension we merely form a concept, without affirming or denying anything; reasoning as such, being merely a transition or process, may be called correct or faulty, but not true or false.

2. Truth and error are fully had in those acts in which the mind turns toward reality and says firmly that it is so (S is P, S is not P).

Now this happens only in judgments.

Therefore truth and error are fully had in judgments alone.

Proof of minor: a) That this is done in judgments, is evident. b) It is done neither in simple apprehension nor in reasoning.

Objections

1. *God* possesses all truth fully. But God does not judge; for judging implies an imperfection.

A. We only speak of the acts of the human mind.

2. Truth is had fully wherever its *definition* is verified. Now the definition of truth is verified also in the idea.

A. *Dist. major*: 'fully' in the sense explained, *yes*; in any other sense, *no*.

3. Truth is had more fully in an act which *cannot* err, than in an act which can err. Now simple apprehensions cannot err, judgments can.

A. *Dist. major*: more 'fully' in the sense explained, *no*; in some other sense, *transmit*.

4. If the thesis were true, we would only know *relations*; for every judgment is a relation between S and P. But to say that we only know relations is relativism or agnosticism.

A. *Deny major*. It is one thing to know only relations, and it is another thing to express all our knowledge (real or supposed) by means of relations. We deny the former and admit the latter.

Schol. False Notions

If our thesis stands, ideas (concepts, notions) should not be called wrong or false. Yet we often speak of wrong ideas, false notions or concepts. What is to be said of such terminology?

Let us distinguish. a) An idea, properly speaking, is a *definition*. Now a definition is correct if made in accordance with the laws of definition (see page 65, 67); if not, it is incorrect or wrong. But this is rarely meant when we speak of wrong ideas. b) As a rule, we mean either false *judgments* or (very often) definitions *wrongly applied*. Thus the false doctrines of communism are called wrong ideas. Or when liberty is taken to mean licence, or authority defined as tyranny etc., we speak of false notions. But it is clear that the terms 'idea,' 'notion' etc. are here used in a *wider* sense.

Readings

Coffey, Log. I p. 158-160; *Cunningham* p. 58-66, 76-80; *Rickaby* p. 14-41; *Rother*, Truth and Error p. 26-69, 90-103; *Shallo* p. 91-5.

CHAPTER 3

Criterion of Truth

1. Scholastic Dispute

a. Criterion of truth may be defined as that (sign, mark) by which I know that I possess the truth, and that I consequently have the right to assent (or dissent) unhesitatingly.

No doubt, subjectively speaking, there are as many criteria of truth as there are sources of cognition. But Scholastics consider the question more objectively. Is there anything in the *object* that tells me that I have the truth?

b. Scholastics are not agreed whether we ought to look for a *universal* criterion. Some (e.g. Remer, Gény, Jouin, de Maria) deny that there is any need for it; others insist that there is and must be one.

The quarrel would seem to be one of *definitions*.

Those who deny the need of a universal criterion of truth, point to the ordinary implication of the word 'criterion.' A criterion, they say, is needed only where there is danger of erring; now many propositions are so obvious that all danger of erring in their respect is excluded; therefore there is no need of a universal criterion of truth. As is clear from this argument, the *negative* aspect of criterion, viz. exclusion of the danger of error, is stressed.

Those who advocate a universal criterion of truth, rather stress its *positive* implication. Their argument may be formulated thus: Criterion of truth is that by which we know that we possess the truth; now *whenever* we are sure, there must be that by which we know this; therefore there must be a universal criterion of truth.

What then, in this view, is the universal criterion of truth? Nothing else than *objective evidence*, the object manifest to the mind. When the object is manifest to my mind, I also know that I possess the truth; nothing else could give me this assurance.

This second view is more common today. But the whole controversy is of little importance.

2. False Opinions

a. Descartes proposed *clear and distinct ideas* as the ultimate and universal test of truth.

But this opinion, manifestly born of the love of the French for clearness, is false. I may have a very clear conception of the sun moving around the earth; but that does not make it true. Clearness is not synonymous with truth. Moreover, as Catholics, we cannot possibly hold this opinion. Historically it has led to complete separation of philosophy and theology, to 18th century illuminism, even to modern rationalism; systematically it denies that the mysteries of the Catholic religion are true; for mysteries are not clear and cannot be clear in this life. See Mahony, Cart. p. 79-84.

There is no denying, however, that clear and distinct ideas are a necessary *condition* of certitude. One of the most common sources of error are confused and obscure ideas, that is, ideas which have no sharp-edged definition in our mind or which have not been analyzed into their conceptual elements.

b. To John Dewey the only criterion of truth is the *satisfaction* a man gets out of acting.

But such a criterion would make all truth relative, and man would become the measure of things; for one man's satisfaction (e.g. playing the saxophone at midnight) might be and often is another's dissatisfaction.

c. Many Protestants invoke *experience* as the ultimate criterion of religious truth. Religious doctrines are true only

in so far as they stir in us a new emotion, a lively sensation. This is also the essence of modernism.

But religion is to be judged first of all by its contents, not by the thrill it may cause in the adherent. Religion is the acknowledgment, theoretical and practical, of our *relation to the Creator*, and this acknowledgment is based on objective evidence.

d. *Inconceivability of the opposite* has been put forward as the ultimate criterion of truth by some English philosophers (e.g. Spencer).

This criterion is vague, unfounded, incorrect. The two terms 'inconceivability' and 'opposite' bear a variety of meanings; our ignorance is made the test of truth; those who propose the criterion mean by it that we cannot picture the opposite in our imagination, though there is question of the understanding. Cf. Coffey, Ep. I p. 157-167; II p. 282; Rickaby p. 200-4.

CHAPTER 4

Degrees of Truth and Error

Can one judgment be called *more true* or *more false* than another?

a. Likeness between two things may be greater or less. Not so conformity, which constitutes truth. Conformity between the mind and object is either perfect or none at all. When I say that $2 \times 2 = 4$, this is either entirely true or not at all. Truth does *not* admit of degrees.

Sometimes indeed we speak of propositions which are *more or less true*. But then we mean that they have a true and a false meaning, that they therefore must be *distinguished*. But once the meaning has been made definite, the proposition is either entirely true or entirely false.

Still, this does not deny that we may *learn more* about an object and thus add to our knowledge of it (e.g. this is a table, this is a round table, this table is wooden).—Nor does it deny that one truth (concretely) may be *more necessary* than another. Cf. Rother, Truth and Error p. 70-84.

b. Error admits of degrees.

First of all, one error may be wider of the mark than another; thus one who thinks that $2 \times 2 = 10$, is evidently farther from the truth than one who thinks that $2 \times 2 = 5$.—Moreover, error may cover a wider or less wide range.—Finally, error may only concern accidental truths or even necessary truths; in this second case, the error is evidently

greater and more deplorable (e.g. if one does not know that there is a God).

Error may be explicit or implicit, obvious or hidden. Thus to say: Christ is not God, is an obvious error. But modernists say that Christ is God, and mean something altogether different from 'God.' Such hazy concepts lead to the fallacy of equivocation (see p. 72).

CHAPTER 5

Causes of Error

Error is a false judgment. Error is an assent to what is not so, or a dissent from what is so; we say yes when we should say no—or vice versa.

The world is full of errors. Cicero says: "Cuiusvis est hominis errare"; and Catullus: "Suus cuique attributus est error." We, too, err almost every day. Skeptics conclude from this that there is no formal certitude at all. But we saw (thesis 1) how foolish this conclusion is. We also showed that nature has given us various means of arriving at formal certitude, and that formal certitude is possible in all fields of human endeavor.

Still, error is a *fact*—to be deplored, yes, but not to be denied. How can we *avoid error*? This is the last practical question of epistemology.

The best way to answer this question will be to find the *causes* of error. "Principiis obsta," as the Latin poet said. Once we know the sources of our errors, it will be easier to avoid them.

We shall divide the causes of error into proximate, remote, and ultimate.

However, before entering on this investigation, we must define error more accurately.

a. By 'errors' we mean those false judgments which people make in their *normal* state. In the abnormal state (insanity, sleep, infancy) man's power of reflection is hampered in its free exercise; hence nobody accuses such people of *formal error*.

b. By 'error' we understand a *firm*, unhesitating assent (or dissent).

Therefore we do not speak of mere opinions, i.e. as long as a man's assent does not exceed the weight of his arguments. For, as long as a man is conscious of the insufficient evidence behind an opinion and does not assert more than the motives warrant, we do not speak of error in the proper sense.

In other words, by 'error' we mean *purely* subjective certitude.

I. PROXIMATE CAUSES

1. Error, being a judgment, must be due, at least partly, to the *intellect*; for the judgment is an act of the intellect.

But the intellect alone does not give us a sufficient explanation of error. Why should the intellect firmly embrace error? The intellect is made for the truth; of itself it cannot love error.—Nor is the intellect indifferent toward truth and error, so that it would embrace either with equal love. If that were so, the intellect would no longer be a faculty.—Nor can objective evidence ever force the intellect to adhere firmly to a false proposition. Objective evidence is the object itself manifest. Now the object cannot manifest itself other than it is.

There is then another cause of error besides the intellect. As a matter of fact, if we reflect on the genesis of our errors, we realize that some non-intellectual influence has been active. This other cause, in every case, must be the *will*. There is no other factor which could directly influence the intellect and move it to assent without sufficient evidence of its own.

Hence we simply say that errors are *always* due to the direct influence of the will.

2. Still, the influence of the will must not be exaggerated: a) Error is not *voluntary* in the sense that we want it as such. No one sets out to deceive himself. It would mean that

though knowing a thing to be true, he yet believes it to be false—a psychological impossibility. b) Though error in itself is *sinful* (as St. Thomas teaches), yet there often are mitigating circumstances: we do not realize the danger of erring, we assert something false in the heat of an argument, we may be obliged to come to a quick decision etc. Cf. Rother, Truth and Error p. 104-117; Rickaby p. 232-247.

3. Now since both intellect *and* will co-operate in the making of mistakes, though in different manners, it is our purpose to investigate the peculiar conditions which are apt to lead to erroneous judgments. These conditions are the remote causes of error.

II. REMOTE CAUSES

Error is impossible unless it has the *appearance* of being both true and good.

We cannot assent to a proposition that has not even the appearance of *truth*. For, on the one hand, truth, as Scholastics put it, is the formal object of the intellect; on the other, merely apparent truth is sufficient for the intellect to assent, as experience testifies.—Similarly, the formal object of the will is the good; the will cannot act unless its object be good, at least apparently *good*.

Now only the true is good and only the good is true. Error therefore is false and bad. But the question is: What gives to error the *appearance* of being true and good? This evidently is the remote cause of error.

I. APPARENT TRUTH

Generally speaking, apparent truth is due to *confusion of ideas*. This is clear from the very notion of judgment. The judgment is an act by which we affirm that S is or is not P. Now when the meanings of both S and P are clear, there is no

possibility of saying 'is' when we should say 'is not'—or vice versa.

The further question then is: *Whence* are confused ideas? Though their origin is manifold, yet we may point out 4 of the principal sources:

1. Lack of Attention

All our (natural) cognitions come to us through one or more of the 5 sources spoken of in part two. Now in each source were pointed out the *conditions* necessary for formal certitude. But how many there are who ignore them and then assent firmly.

2. Inaccuracy

Card. Newman says: "Inaccuracy is the besetting sin of all, young and old, learned and unlearned. We don't know what we are talking about." This slovenly habit appears in the use of sentences, arguments, single words.

Do we examine each of our *statements* as to its exact meaning? Do we see in what sense it is true, in what sense it might be false? Do we sometimes turn the statement around, add a word here and a phrase there, and see what becomes of it? Or rather, do we not prefer wide and vague half-truths, arbitrary and ambiguous definitions?

More particularly, when *arguing* pro or con anything, do we make sure of the precise point to be proved, and of the soundness of the proof itself? Are we courageous enough to stand off a bit and coldly scrutinize our own arguments, ready to abandon them if they contain a flaw?

But by far the most fruitful source of error is our careless use of *words*, or rather the *vague notions* we have of the meaning of words. How many people will talk on education, religion, progress, child labor, economics, dogma, evolution

—without having first made absolutely sure a) of the various meanings of these terms, or b) of the exact meaning which they attach to them in the present discussion. Such discussion may be entertaining (like the antics of Mickey Mouse); it certainly will be barren of results.

In his *Apologia*, Card. Newman says of Dr. Whately, archbishop of Dublin and author of a treatise on logic: "He was the first who taught me to weigh my words, and to be cautious in my statements. He led me to that mode of limiting and clearing my sense in discussion and in controversy, and of distinguishing between cognate ideas, and of obviating mistakes by anticipation, which to my surprise has been since considered, even in quarters friendly to me, to savour of the polemics of Rome."

3. False Authority

What is the worth of authority with regard to facts as well as theories, we saw above (see p. 191, 192). Authority clothed with the necessary *conditions* is true authority. False authority makes the same claims, although it lacks these conditions.

Let us enumerate a few cases where false authority is often assumed and easily granted.

a. According to Cicero, the Pythagoreans, when pressed for a reason of their philosophical assertions, simply replied: "Ipse dixit"; that is, Pythagoras, their teacher, said so. That was enough for them. Now the Pythagoreans claimed to be philosophers, and as such it was their duty to investigate for themselves. *Authority* is not the last criterion of truth or motive of certitude.

Nowadays many philosophers swear by Kant or Hegel; the Lutherans swear by Luther, the Christian Scientists by Mrs. Eddy. It is the same *intellectual idolatry*.

b. What an undisputed sway *public opinion* holds over

men's minds! How insignificant the number of those who, having settled principles and sufficient strength of character, can go their own way both in thought and practice! The vast majority prefer to err with the mob than work out their own convictions. It is much easier.

Yet who, as a rule, creates public opinion? Are they experts in the matter? Did they first make sure of the truth and righteousness of their premises before drawing their conclusions? As a matter of fact, they generally are the leaders of political factions, men with an ax to grind, editors of newspapers whose one aim is the increase of circulation, men of wealth who care naught about principles as long as the dollars keep rolling in. Cf. Bricout, in *Dict. pratique etc.*, s. v. *Opinion publique*.

c. Today the *teacher's authority* is not rated very high. Yet, on account of the natural instinct to look up to the teacher as a guide, most pupils will unhesitatingly follow his lead. This is but right. But the teacher must not forget that his authority can never extend beyond the realm of truth. The mind of each pupil is made for truth, and he has the right to demand truth from his teacher, nothing but the truth.

Yet how many teachers there are in our universities, who, either openly or in a more underhand manner, instil into their pupils the poison of atheism or materialism, who ridicule the Catholic religion or all religion, who propose doubtful theories as gospel truths. Of course, it is to be expected that pupils trained by such unscrupulous teachers become themselves even more unscrupulous teachers. Lies do not improve in the telling.

d. What has here been said about false authority, applies equally or even with greater force to *books, magazines, newspapers* etc. Error does not become truth by being put in print. Cf. *The Month*, May 1932, p. 435-441.

Yet, as Father Lord says: "Half our popular writers today don't care whether the thing they say is true or not, provided only it is brilliant. They would slay the truth for an epigram. They would kill a fact to make a phrase. They would rather be clever than right, amusing than honest, smart than true."

4. Prejudices

A prejudice is a judgment accepted without due examination. It differs from an honest opinion. A prejudice is always more or less *irrational*, precisely because it is held without being first subjected to critical inspection. Opinions may be held rationally, viz. as long as we do not forget that the evidence for them is not sufficient to warrant a firm assent. Prejudices, on the contrary, are a case of *mental astigmatism*; they will not allow us to see things as they are.

To draw up a catalog of prejudices, is impossible. They vary from age to age, from nation to nation, almost from man to man. There are prejudices in sciences and philosophy; in politics and social life. Let us enumerate a few which are rather common today: Man is naturally good; all religions are equally good; it is sufficient for any man to lead a good life; man is descended from apes or ape-like beasts; miracles are humbug etc. Cf. T. Swann Harding "The Joy of Ignorance," where a wealth of prejudices peculiar to us may be found.

There are two things to be noted about prejudices:

a. We easily grant that *other people*, especially our enemies, are imbued with them and influenced by them in their judgments as well as actions. But it is exceedingly hard to admit that we, too, have our prejudices. Or if we admit it in general and in the abstract, nobody is allowed to touch any

particular prejudice of ours; nothing fans our ire to such a red heat.

b. We try to *hide* our prejudices from others and from ourselves. We hate to see them discussed openly, to have them dragged out into daylight, so that everybody can have a look at them. Unconsciously or subconsciously we are ashamed of them as of a skeleton in our closet, because we half realize their irrational nature.

2. APPARENT GOOD

Error appears attractive to us either because we love that which the proposition enunciates, or because we love the act of assent itself.

1. Self-love

Self-love may be said to be at the root of the first class of errors. We are naturally attracted toward those propositions which *flatter* us or our friends; we reject a priori those which seem to belittle us or ours. We readily believe what *agrees* with our opinions and prejudices; we stoutly deny what goes counter to them. The mere fact that a proposition agrees with our customs and desires, gives it more evidence, as St. Thomas shrewdly remarked.

2. Intellectual Laziness

Certitude is the ideal state of the mind; it denotes rest and quiet—legitimate rest and quiet. The other states of the mind imply fear of error, hesitation, suspense. They are irksome, and hence our passions urge us to get rid of them somehow.

Now in many things, certitude is to be had only at the cost of serious effort and *untiring* labor. This, of course, is asking too much of the indolent student. He finds it easier to repeat what others, especially his professors, have said than to

probe the matter for himself. In after life, such students will blindly follow the opinions voiced in their club or among their friends; they will be satisfied with political slogans; their guide to truth and ultimate criterion will be the newspaper. Let George do the thinking, is their motto.

Concerning *slogans*, the handy tools of intellectual laziness, C. Ganss, of Princeton University, has well said: "Man's indolent habits grant such phrases long life. You do not need to pursue a tantalizing line of thought farther after you have found one. Once such a phrase has clicked into the receptive mind, it is hard to dislodge it. An aphorism may be untrue, but it is always labor-saving. It economizes effort, for it is difficult with legitimate arguments to convince a persistent, hard-headed opponent, while it is easy, especially in the presence of a crowd, to knock him down with a slogan."

3. Vanity

Some people consider it a disgrace to own that in their case, too, knowledge makes a bloody entrance. They would rather scintillate than be solid. Hence *snap judgments* uttered to cover one's ignorance.

Intellectual vanity is especially apparent today in the craving for *encyclopedic knowledge*. It is easily acquired, and one can make a show with it. It certainly is easier to acquire than philosophy, which is not satisfied unless it has struck the rock bottom of ultimate causes and ordered all knowledge into one world-embracing system.

III. ULTIMATE CAUSES

The last reasons why we err, are two. There is first of all the imperfection of some things. As such Scholastics put down, e.g. matter, which contains a good deal of potentiality.

But the chief reason of our errors is the imperfection of human nature: the dullness of our intellect and the preponderance of human passions.

Hence we may draw a general conclusion as to the *remedies* of error. We cannot change the imperfection of things; we cannot alter the nature of our intellect. But since every error is due to some inordinate passion, the final advice can only be:

A pure love of truth.

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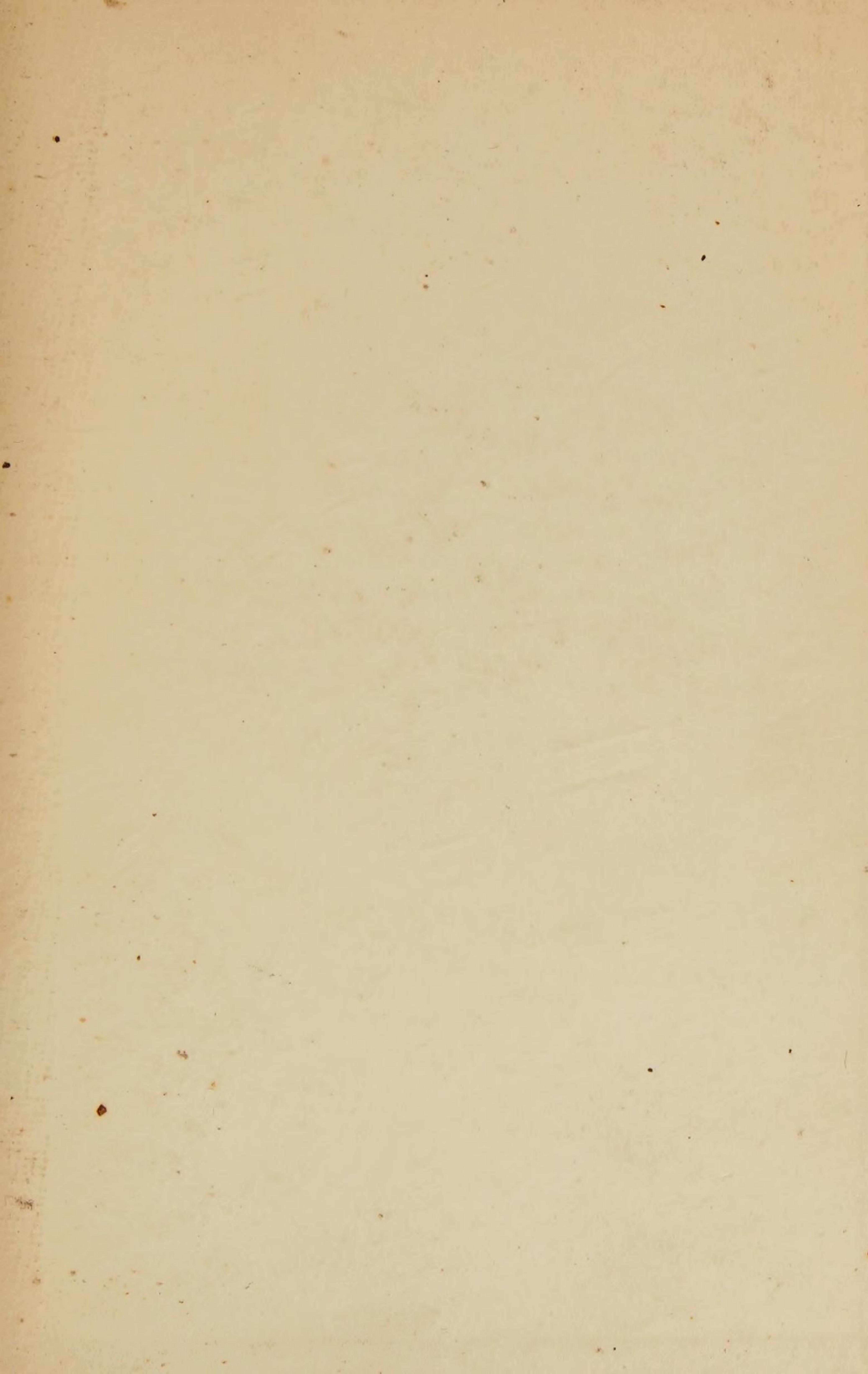
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